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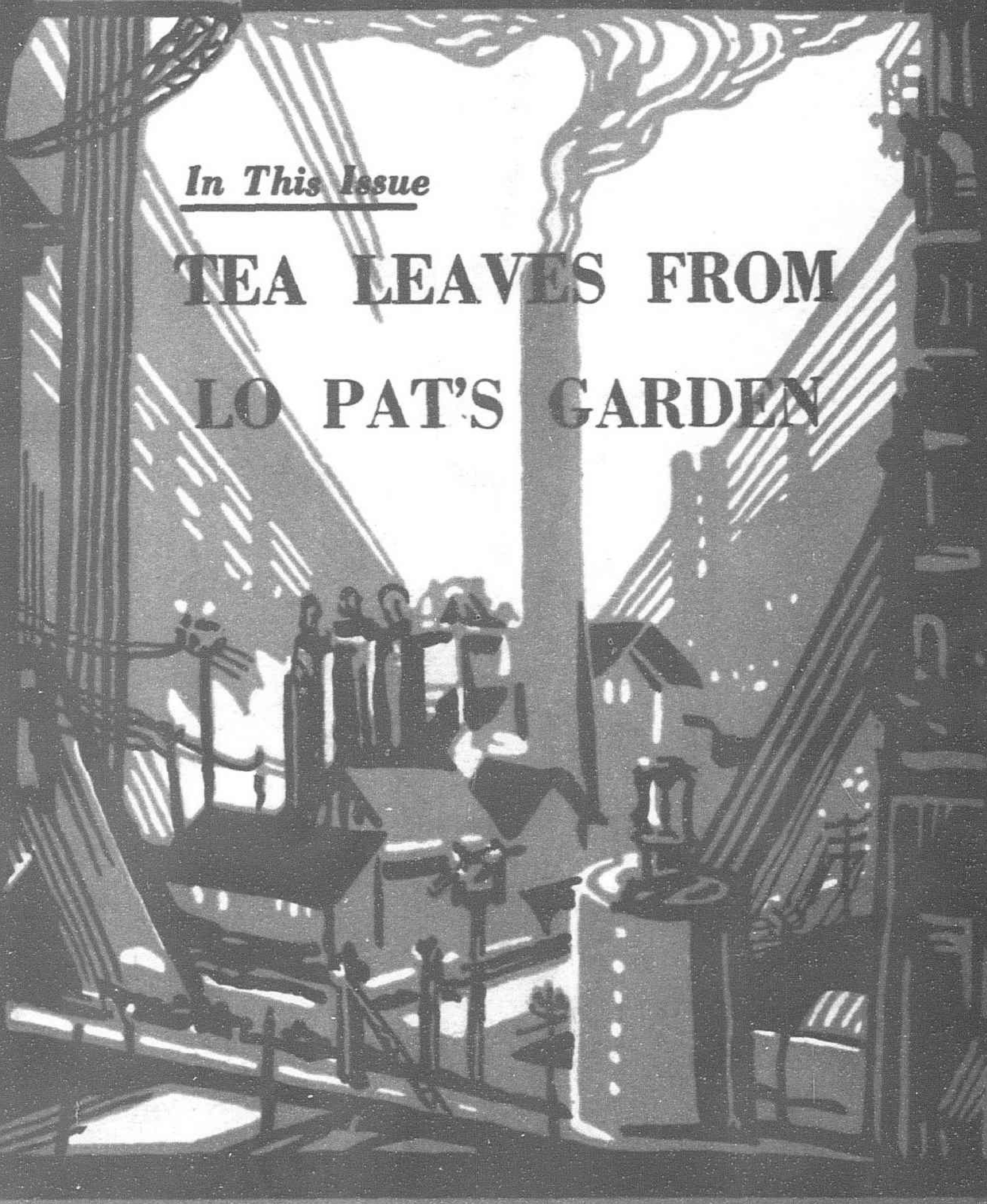

In This Issue

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A MONROE DOCTRINE FOR JAPAN

EXPATRIATES IN ASIA

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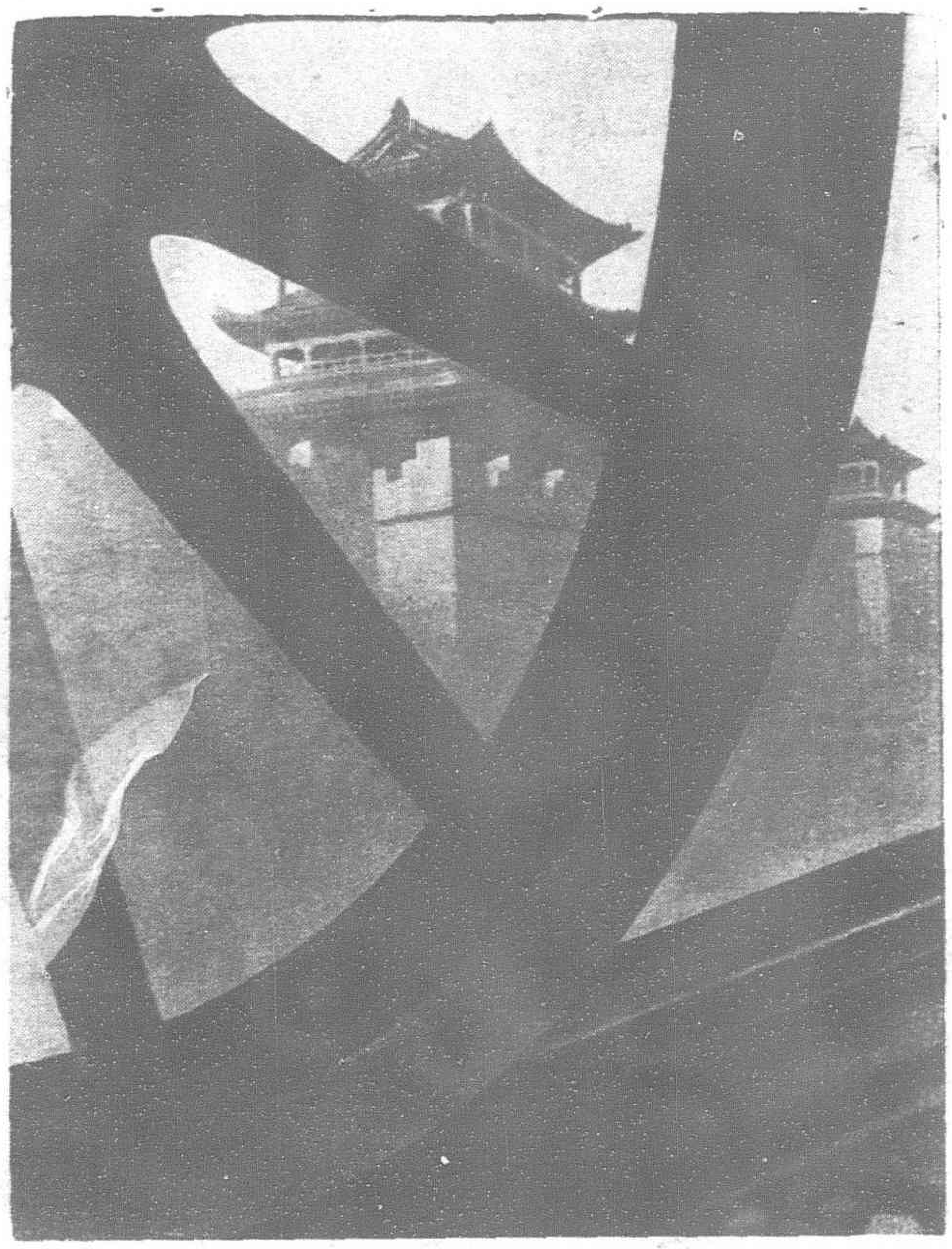

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CONTENTS:

PAGE
FAR EASTERN CROSS-CURRENTS 1
TEA LEAVES FROM LO PAT'S GARDEN *7
THE PLIGHT OF AN AMERICAN MINORITY .. 8
STATISTICAL YEAR-BOOK OF THE LEAGUE OF NATIONS 10
A MONROE DOCTRINE FOR JAPAN 11
EXPATRIATES IN ASIA 14
BURMA'S WAR EFFORT 16

PAGE
INTERNATIONAL ACTIVITIES SEEN IN NEW PACIFIC AIR ROUTES *18
RAILCARS FOR NEW ZEALAND *20
MANCHOUKUO'S ELECTRIC POWER PROGRAM .. *22
MANCHURIAN RAILWAYS *25
SYNTHETIC RUBBER *29
SHANGHAI'S COTTON INDUSTRY IN 1940 33
IMPORTANT NEW RAIL LINK IN NORTH CHINA .. *35

**Illustrated with Maps or Photographs*

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Babcock & Wilcox, Ltd. .. 2
Bank of Chosen 12
Bucyrus Erie Co. 13

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Hongkong and Shanghai Banking Corporation 13
Hua Hsing Commercial Bank 4

Imperial Japanese Government Railways .. 7
Industrial Bank of Japan, Ltd. 12
Itoh & Co., Ltd.. C. .. 11

Japanese Cotton Millowners' Assn. .. 12
Jardine Engineering Corporation Ltd., The .. 14

Marubeni Shoten Ld. .. 5
Maybach-Motorenbau GmbH .. Cover
Mitsubishi Bank, Ltd. .. 4
Mitsubishi Jukogyo Kabushiki Kaisha 5
Mitsubishi Shoji Kaisha .. 5
Mitsubishi Soko Kabushiki Kaisha 4
Mitsui Bank, Ltd. .. 9
Mitsui & Co., Ltd.. .. 9
Mitsui Mining Co., Ltd. .. 6

North-China Daily News.. 10

Okura Kumi 13
Osaka Marine & Fire Insurance Co. 4

Shanghai Power Co. .. 11
Shanghai Telephone Co... 8
Shanghai Waterworks Fittings Co., Ltd. .. 11
Smidth & Co., A/S., F. L. 3
South Manchuria Railway Cover
Standard-Vacuum Oil Co. 14
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Sumitomo Bank, Ltd. .. 8

Texaco 14

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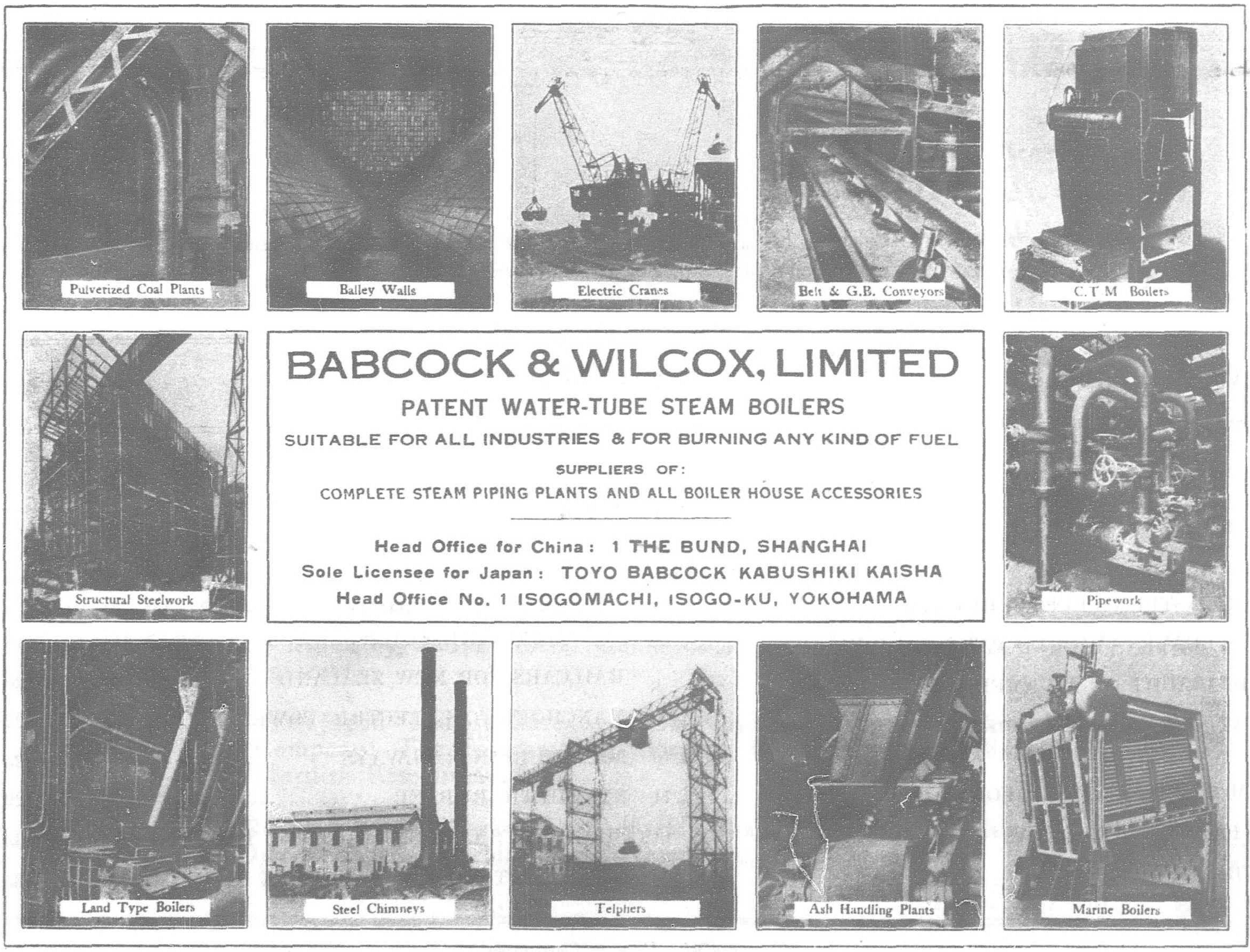

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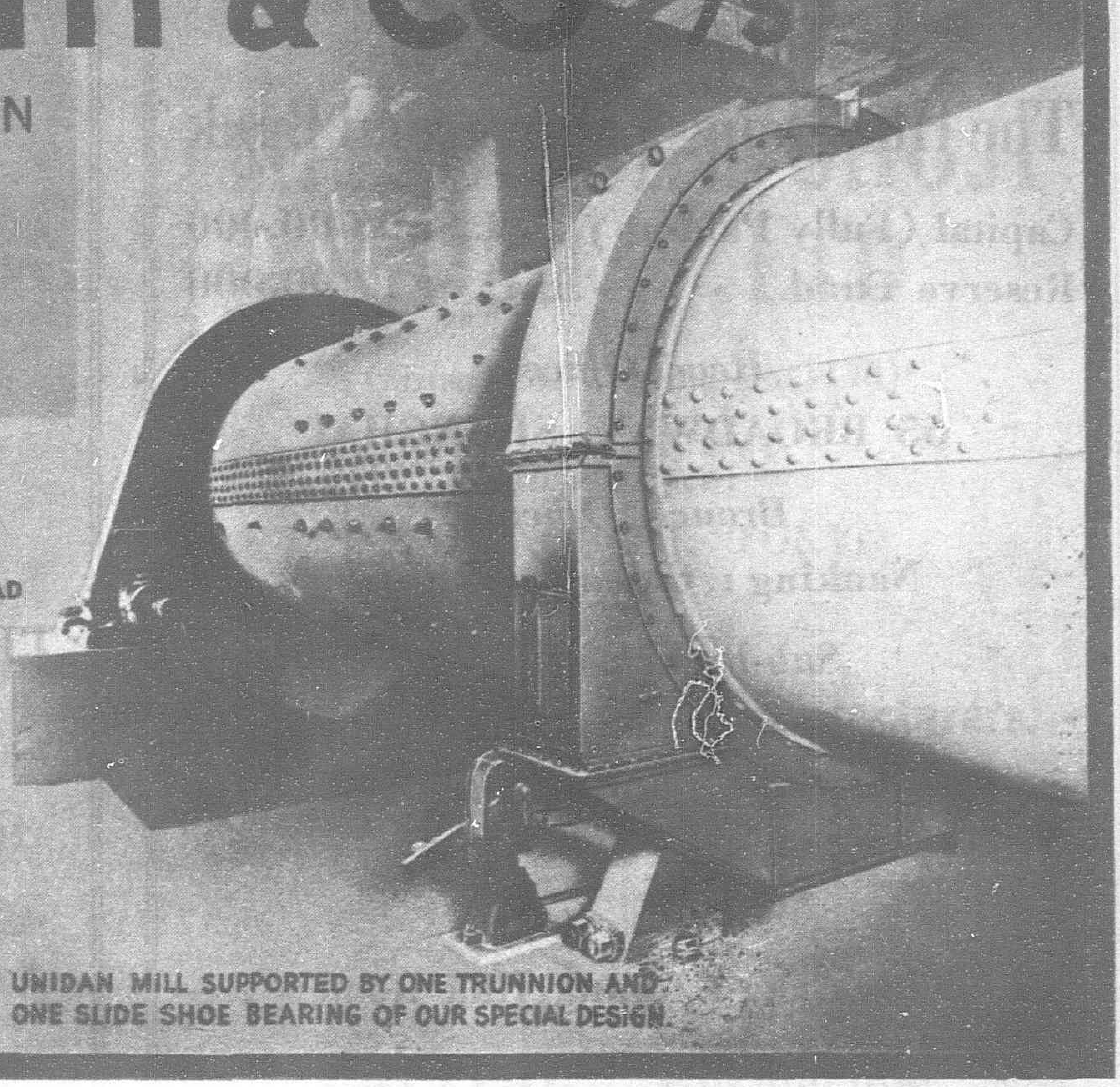

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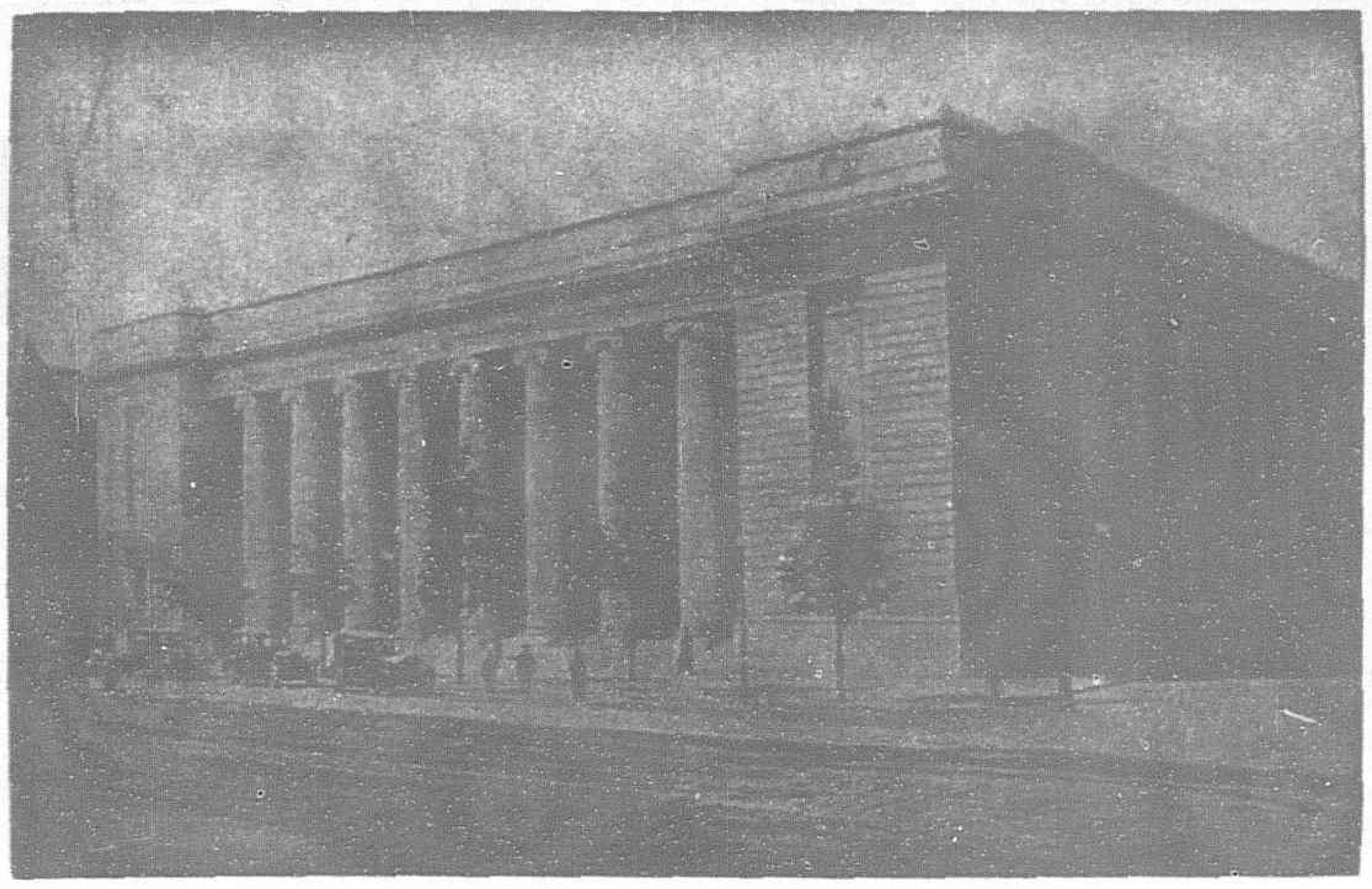

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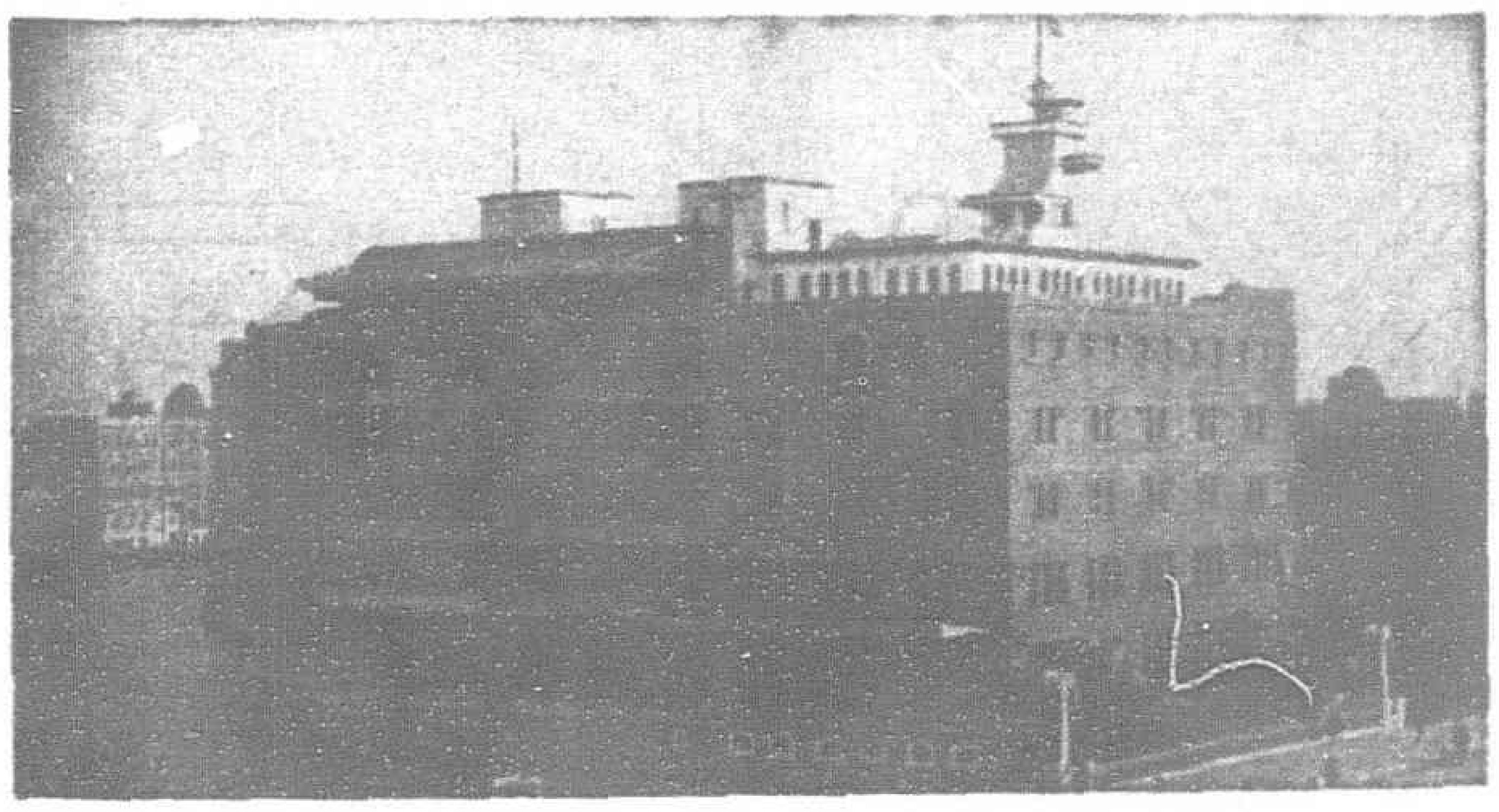

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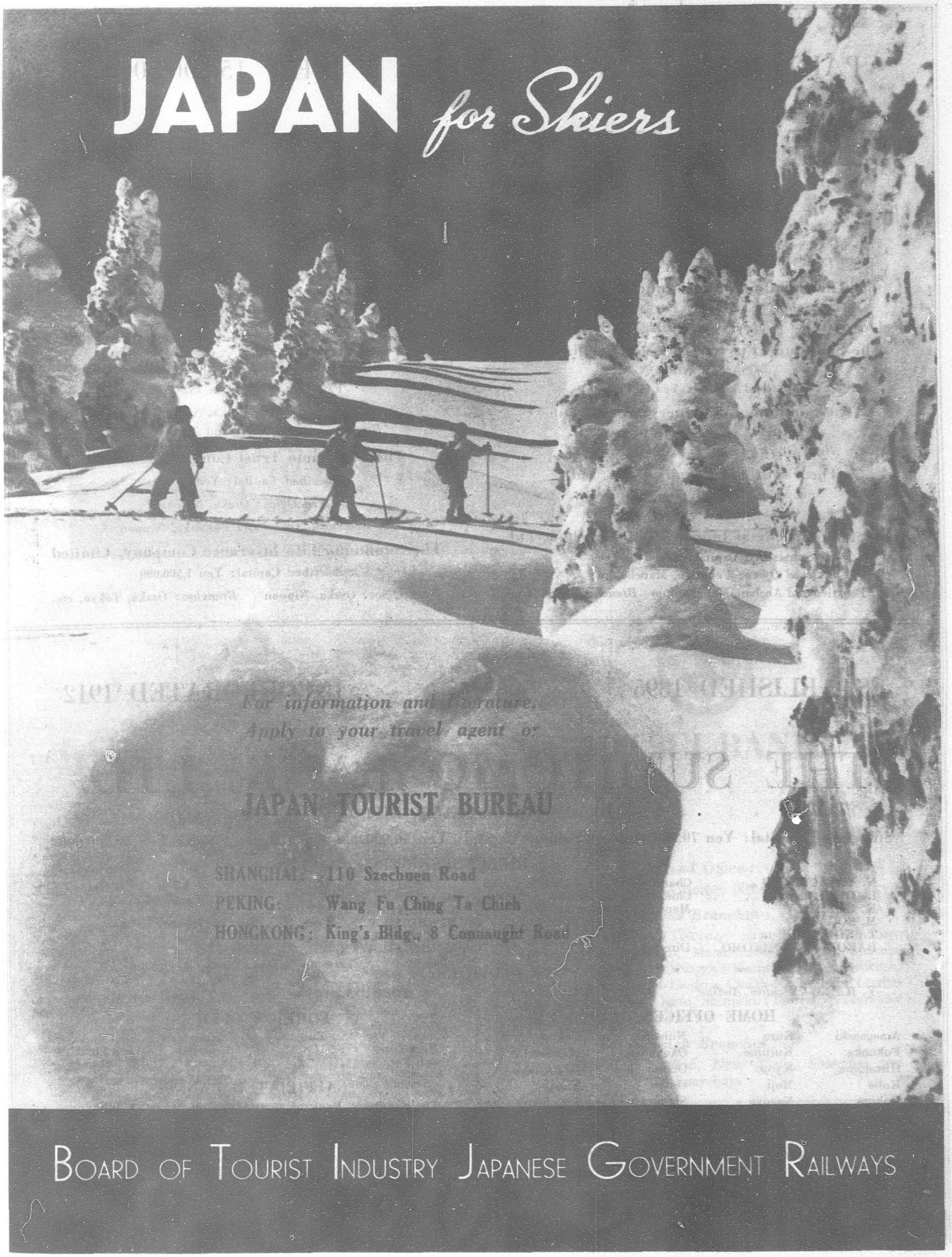

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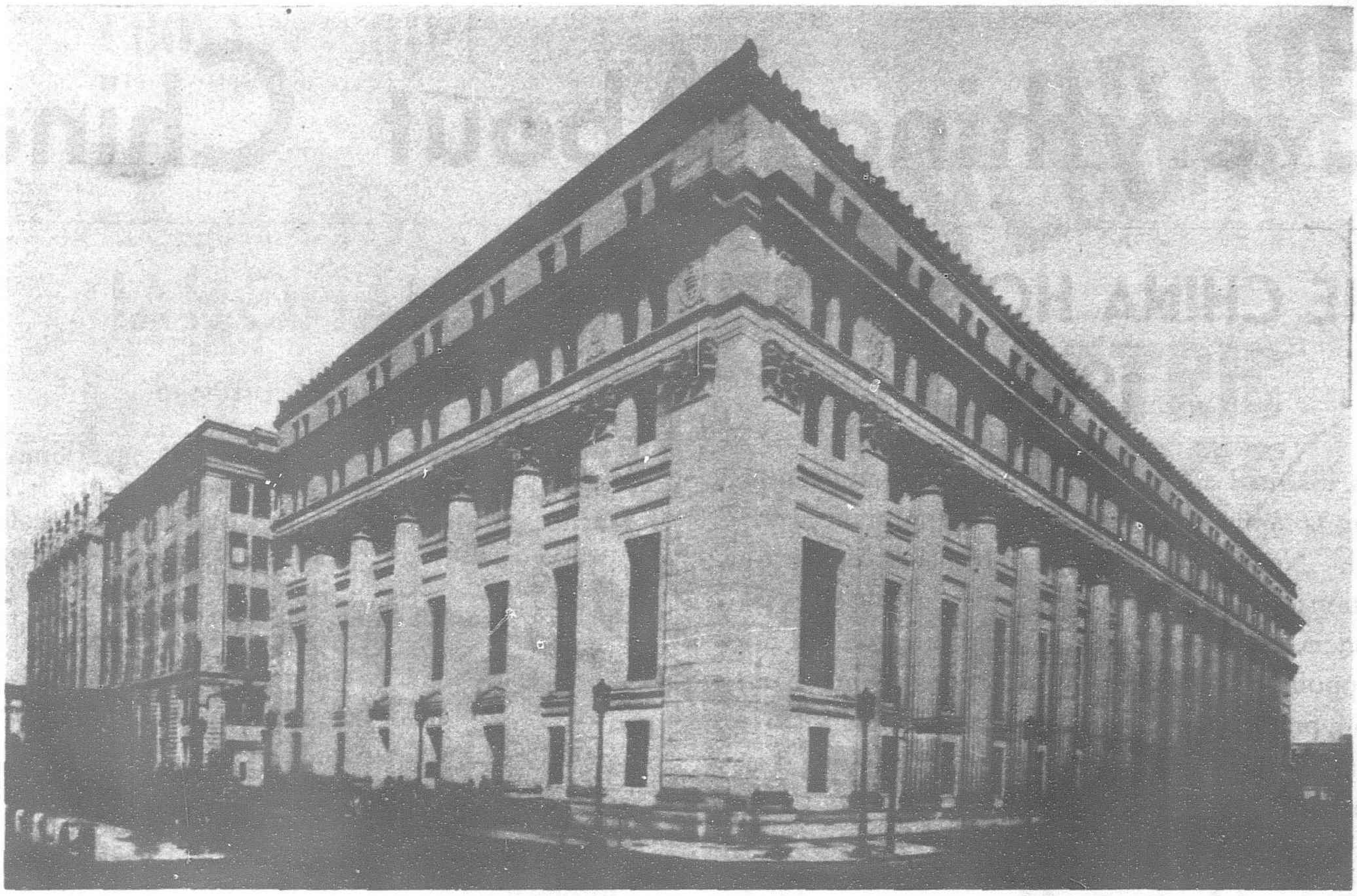

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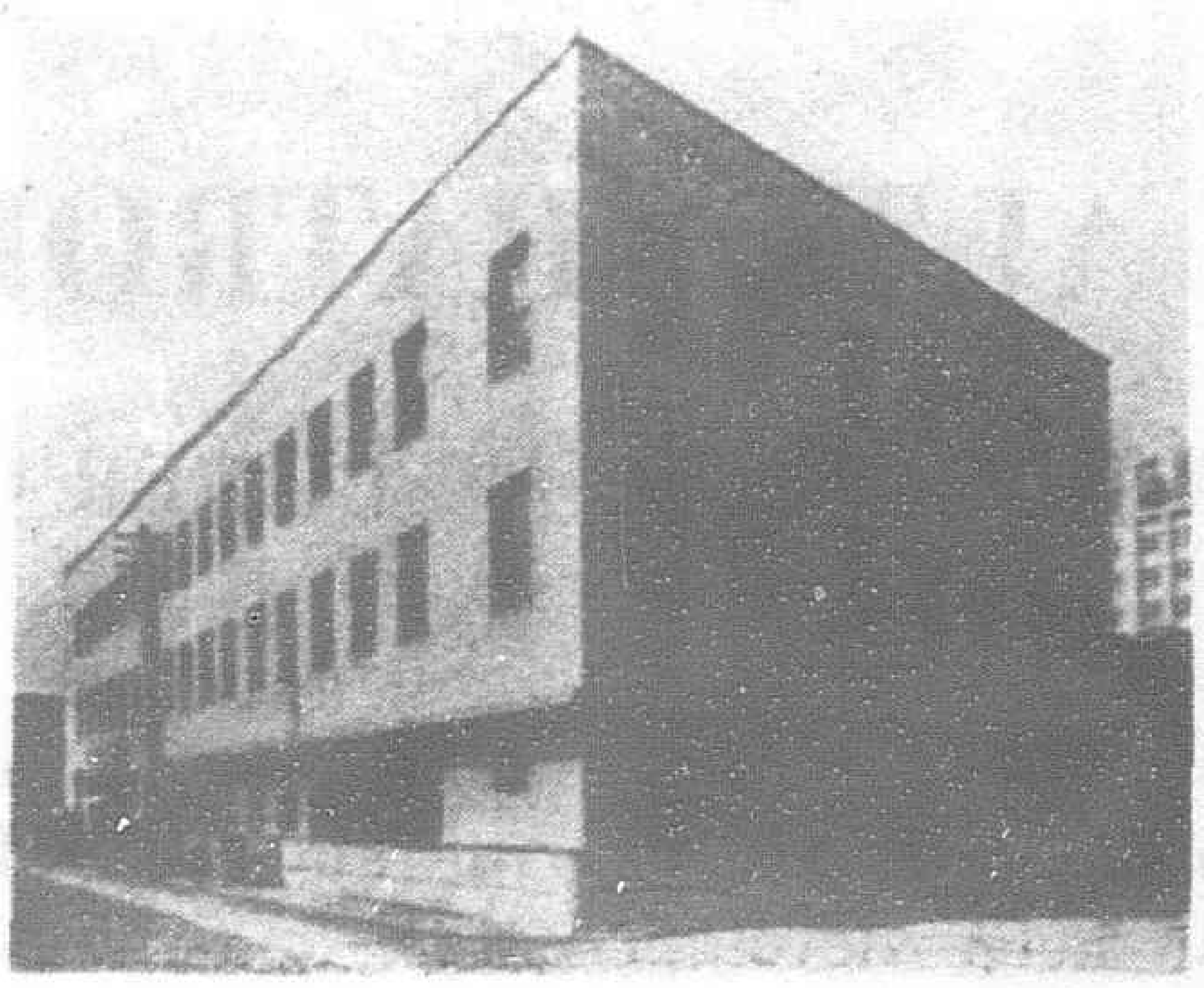

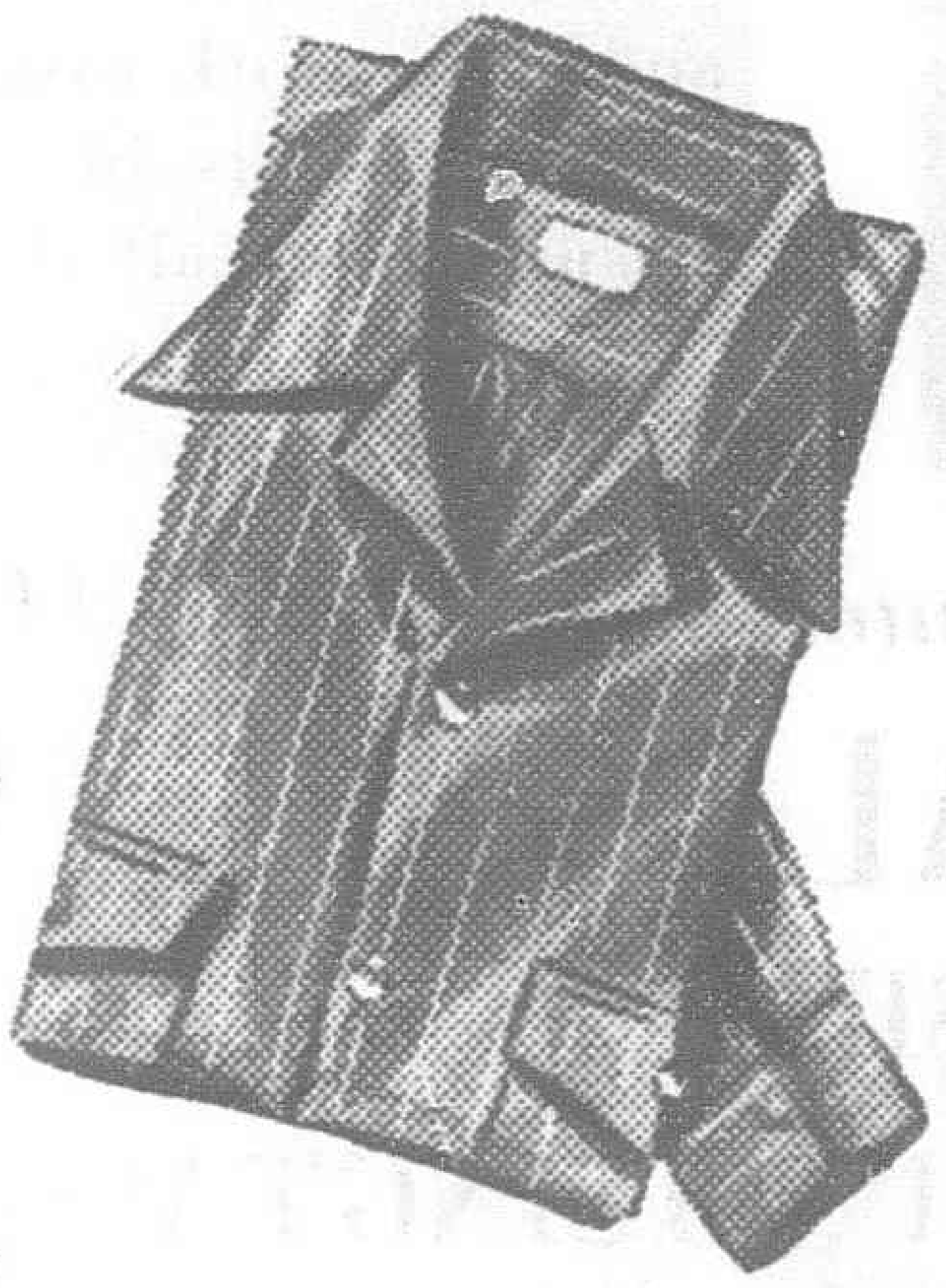

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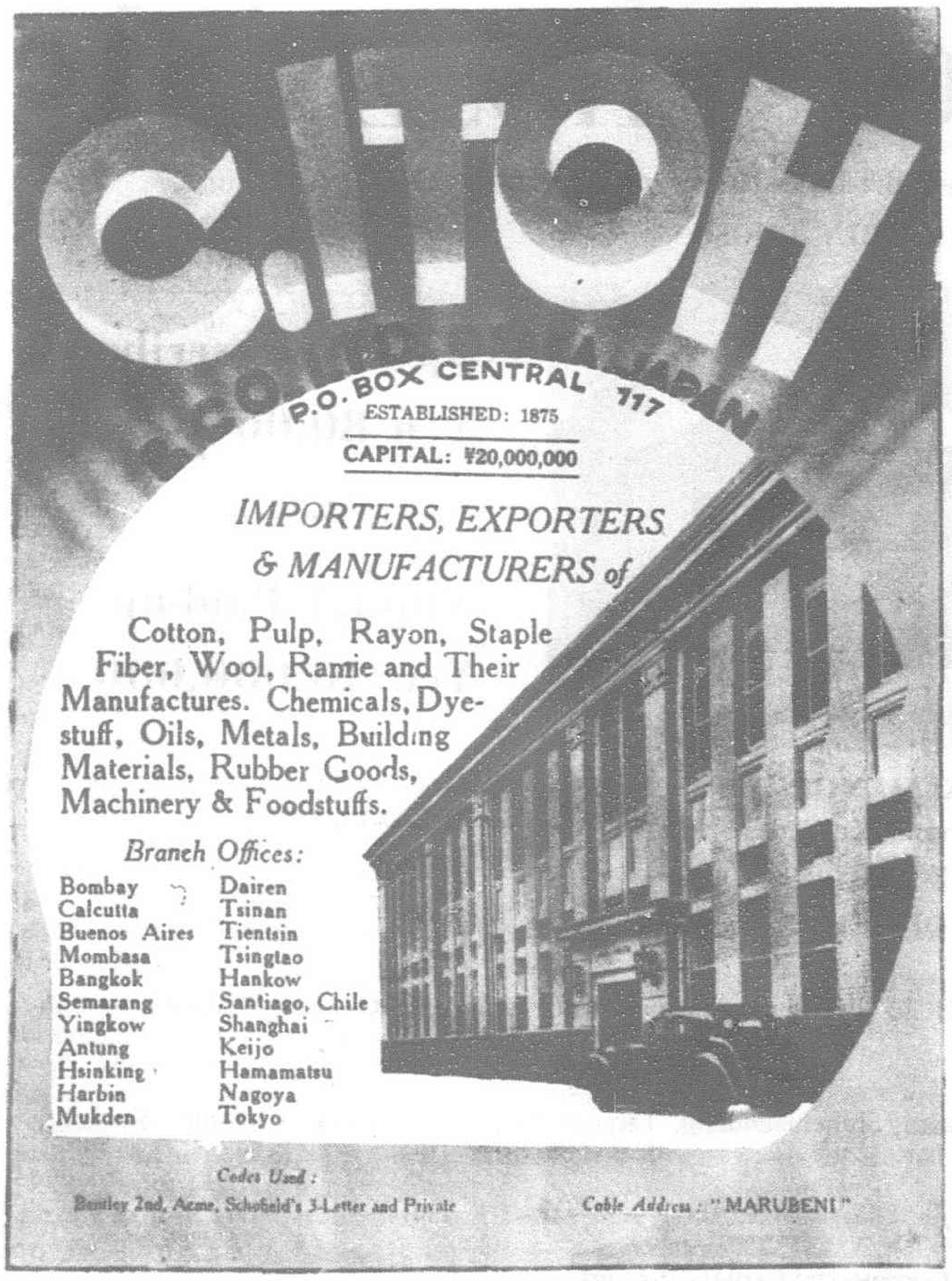

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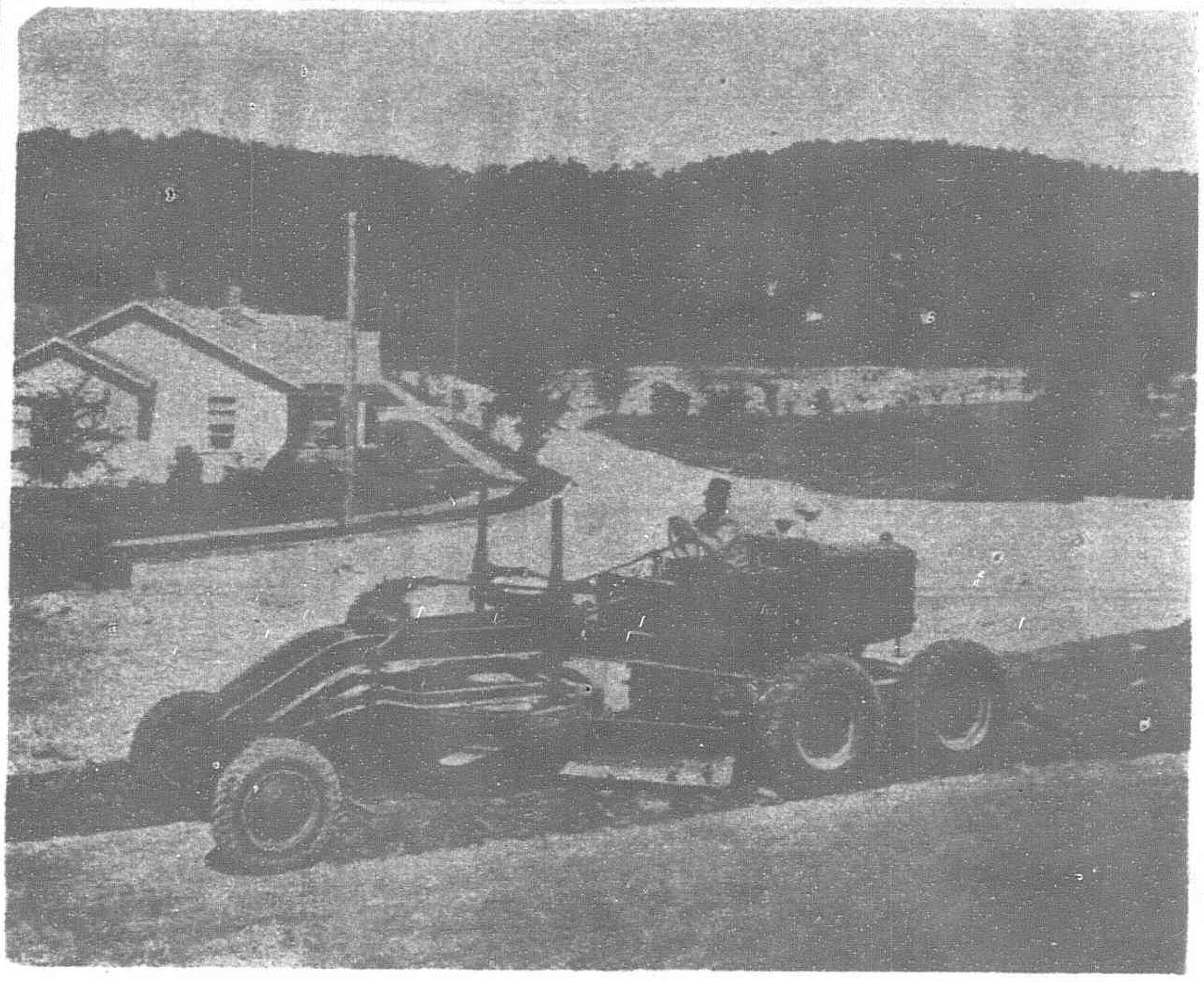

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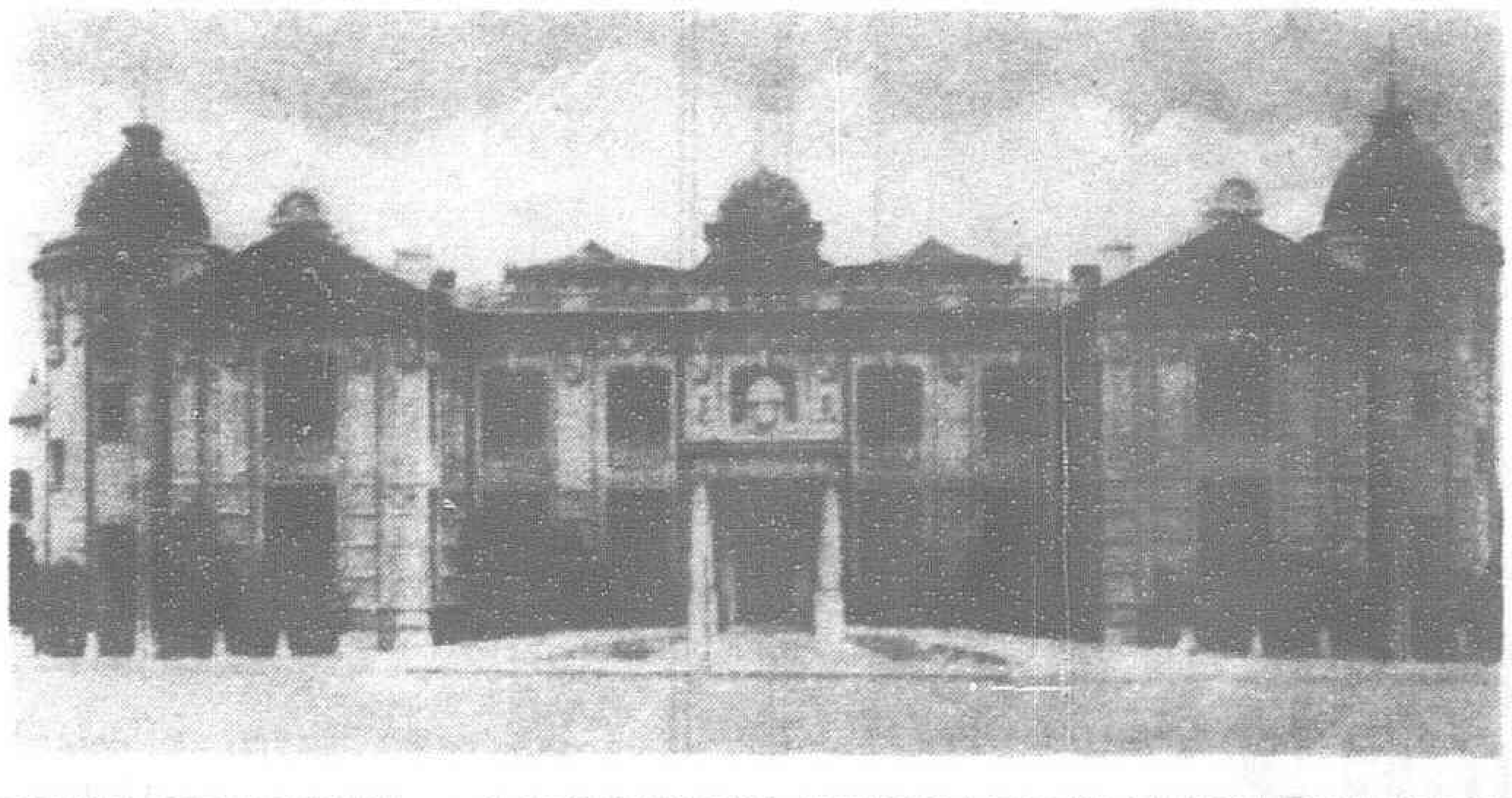

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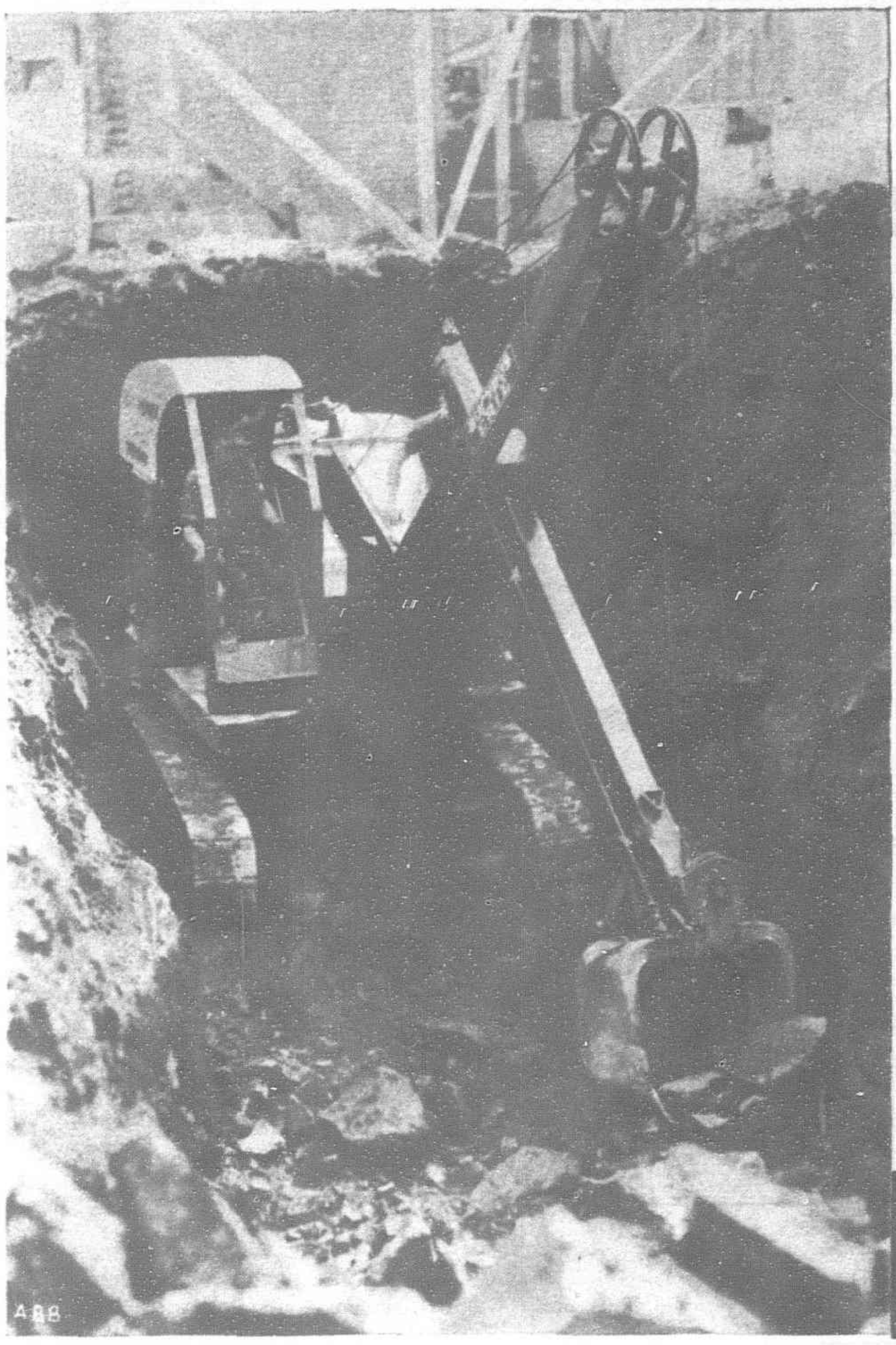

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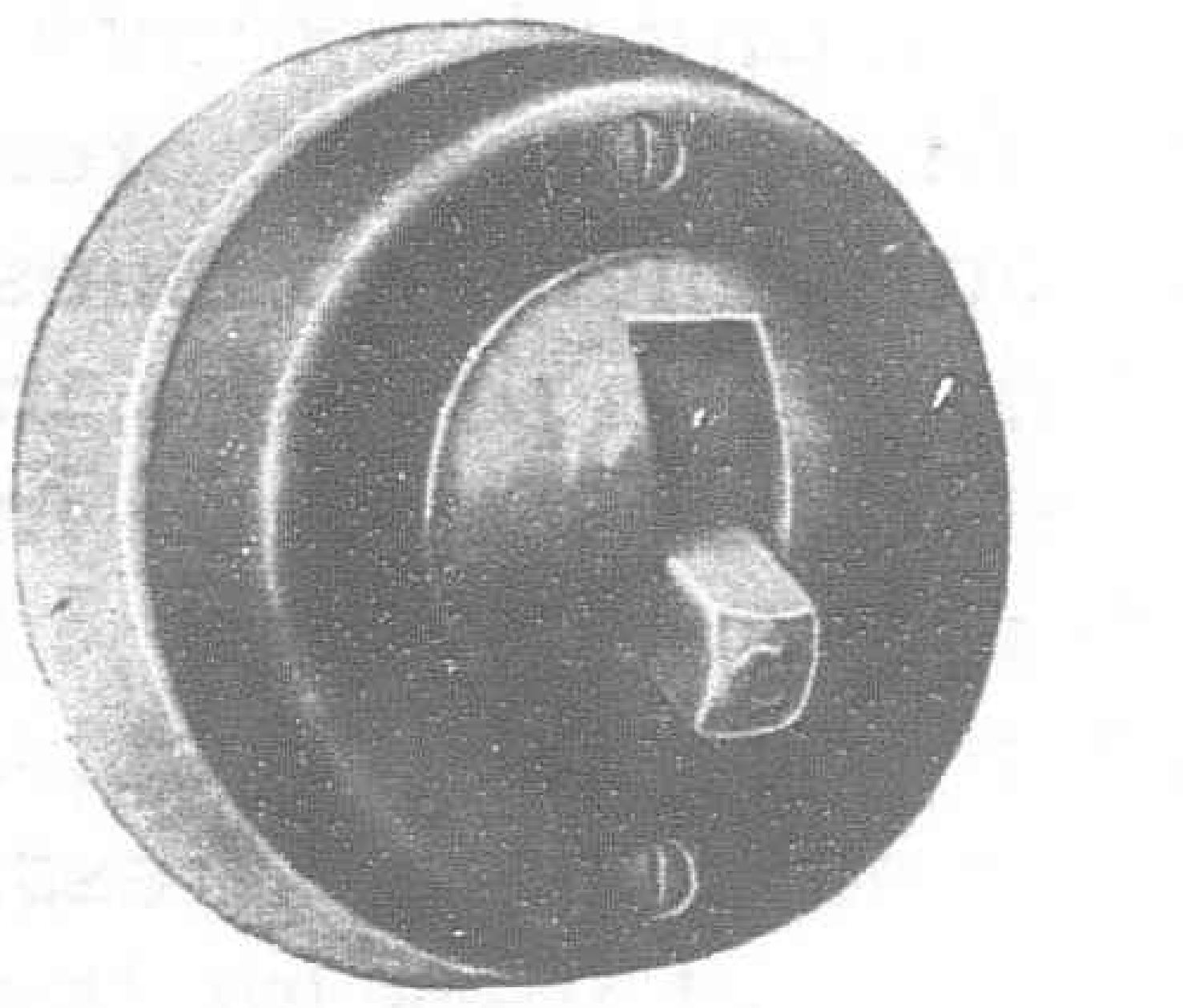

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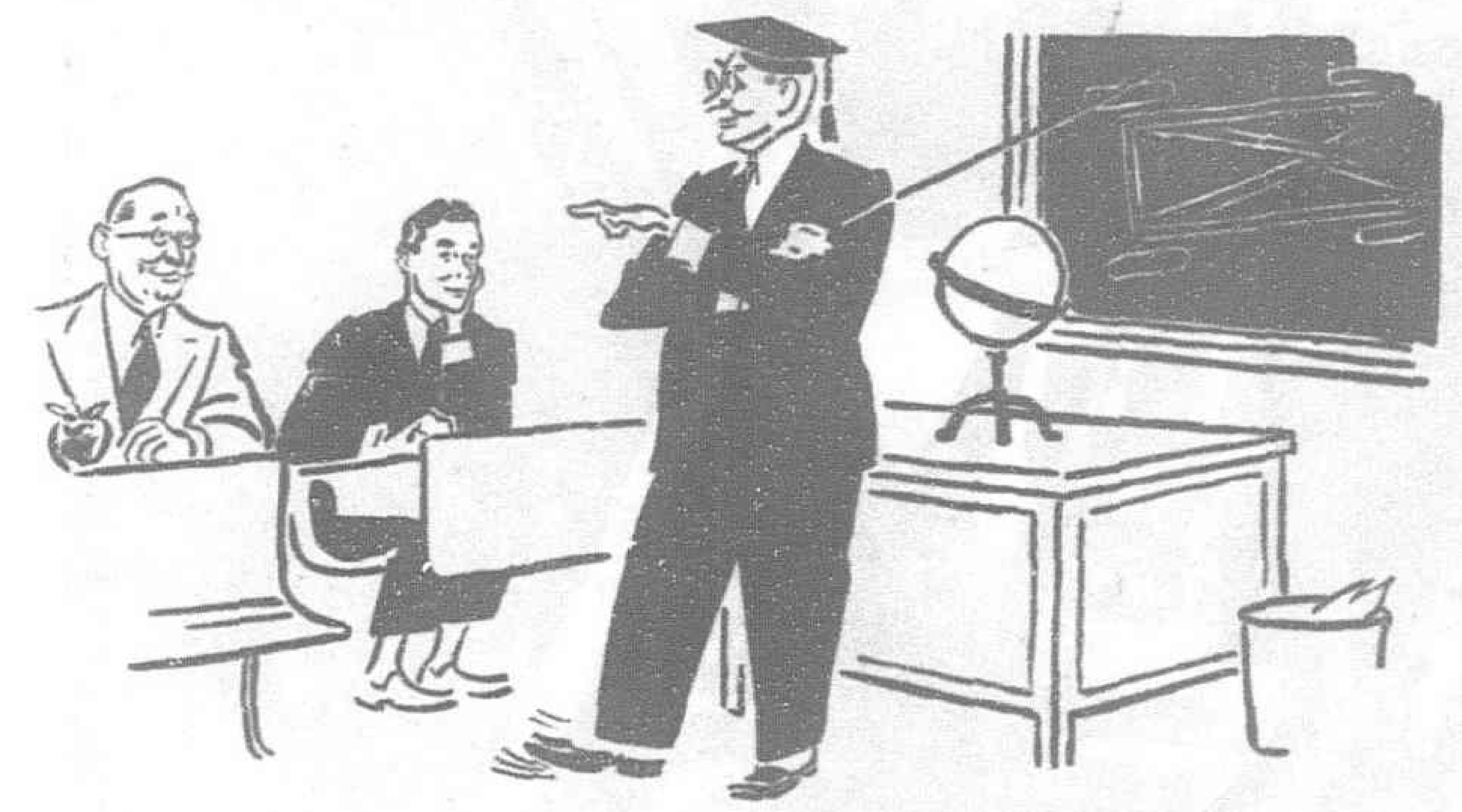

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FAR EASTERN CROSS-CURRENTS

President Roosevelt, in a radio broadcast to the nation on December 29, flatly rejected proposals that the United States should initiate a peace movement and confidently predicted that the Rome-Berlin-Tokyo Axis will meet with defeat.

The President appealed to the American nation to turn itself into a " great arsenal of Democracy " and pledged the expansion of American aid, " short of war," to Britain.

The President promised the nation that American soldiers would not be sent to fight in Europe, but pointed out that the United States must increase her material aid to Britain if an American war with the Axis Powers is to be averted in the future.

" Does anyone seriously believe," Mr. Roosevelt said, " that we need to fear attack while a free Britain remains our most powerful naval neighbor in the Atlantic ?

" Does anyone seriously believe, on the other hand, that we could rest easy if the Axis Powers were our neighbors there ?

" It is no exaggeration to say that all of us in the Americas would be living at the point of a gun....To survive in such a world we would have to convert ourselves permanently into a militaristic power on a basis of war economy....

" Frankly and definitely there is danger ahead—a danger against which we must prepare. We well know that we cannot escape this danger, or the fear of this danger, by crawling into bed and pulling the covers up over our heads."

" Any South American country in Nazi hands would always constitute a jumping off place for Germany in attacking any other Republic in this Hemisphere," the President said.

" There are those who say the Axis never would have any desire to attack the Western Hemisphere. This is the same form of dangerous, wishful thinking which has destroyed the powers of resistance of so many conquered peoples....

" Let us no longer blind ourselves to the undeniable fact that the evil which has crushed, undermined and corrupted so many others already is within our gates...

" The experience of the past two years has proved beyond doubt that no nation can appease the Nazis. No man can tame a tiger into a kitten by stroking it.

" Thinking in terms of to-day and to-morrow, I make the direct statement to the American people that there is far less chance of the United States' getting into war, if we do all that we can now to support the nations who are defending themselves against Axis attack, than if we acquiesce in their defeat, submit tamely to an Axis victory and await our turn to be the object of attack in another war later."

The President's remarks in this connection were regarded as a blunt reply to recent German warnings to the United States against extending material aid to Britain.

The President said his aim was to keep the United States " out of a last ditch war for the preservation of American independence " and clearly indicated that he intended to do this by supplying Britain and China with material aid sufficient to assure the defeat of the Axis Powers.

" This is not a fireside chat on war," Mr. Roosevelt said. " It is a talk regarding national security.

" Never before, since Jamestown and Plymouth Rock has our American civilization been in such danger as now. For on September 27, 1940, by an agreement signed at Berlin, three powerful nations, two in Europe and one in Asia, joined themselves together in a threat that if the United States interfered with or blocked the expansion of the program of these three nations—a program aimed at world control—they would unite in ultimate action against the United States....

" The Axis not merely admits, but also proclaims, that there cannot be an ultimate peace between their philosophy of Government and our philosophy of Government.

" In view of the nature of this undeniable threat, it can be asserted properly and categorically that the United States has no right or reason to encourage the talk for peace until the day shall come when there is a clear intention on the part of the aggressor nations to abandon all thought of dominating or conquering the world."

Grew Answers Matsuoka

The United States Ambassador to Japan, Mr. Joseph C. Grew, on December 19 warned Japan that America is interested in actions not words regarding Japan's peaceful intentions.

The white-haired Ambassador's warning was sounded during a speech before the America-Japan Society and followed a speech by Mr. Yosuke Matsuoka, Japanese Foreign Minister, who stressed that the Rome-Berlin-Tokyo tripartite alliance was not a belligerent instrument aimed at the United States.

The American Ambassador refuted statements made by Mr. Matsuoka. He specially pointed out that Mr. Matsuoka was in error to state that " after all the fate of China is largely a question of sentiment to Americans, but to us it constitutes truly a vital issue affecting, as it does, the very existence of our Empire."

Mr. Grew said that he was forced to relieve the Foreign Minister of the misapprehension that interests of Americans in China were largely sentimental.

" I have also taken note of the Minister's statement that in Japan's program ' we shut the door nowhere and to none ' and that Japan will not countenance conquest or oppression," he said.

" Mr. Matsuoka has lived long enough in the United States to know that the American people are fundamentally peace-minded. But they are firmly determined on certain matters—their obligations and rights.

" He also knows with the American the only things that count are facts and actions regardless of the persuasive garb in which they may be dressed.

" Let us say of nations, as well as individuals ' by their fruits ye shall know them,' " Mr. Grew said.

The speeches were made during a farewell luncheon by the society for Admiral Kichisaburo Nomura, newly-appointed Japanese Ambassador to the United States, who also spoke briefly.

Mr. Matsuoka made a lengthy address of farewell to Admiral Nomura. The Foreign Minister said America misunderstood Japan's objective—which time would justify.

Mr. Matsuoka frankly admitted that relations between America and Japan were tense, but, he said, patience and statecraft should tide the two nations over the crisis.

Admiral Nomura spoke briefly, saying " I am a plain sailor and a complete stranger to elegant society.

" Being aware of that ignorance," he said, " I at first declined the offer of the Ambassadorship....However, I felt frankly disturbed by the ominous trend of

affairs, which, if left unchecked, may possibly bring about acute tension between two countries which have no reason to quarrel, but every reason to remain friends.

"... .The light has gone out in Europe —let us then, Japan and America, guard the peace of the Pacific."

President Roosevelt in the most eagerly awaited speech since President Wilson's historic declaration of war in 1917, on January 6 reported to a packed 77th Congress on the state of the nation, and declared that the American people had unalterably set their faces against the new order of tryanny that sought to spread over the world at the present time.

President Roosevelt declared that he addressed Congress at a moment unprecedented in the history of the Union, because at no previous time had American security been as seriously threatened from without as it was that day.

After reviewing American history since 1789, the President said: "We should remember that the peace of 1919 was far less unjust than the kind of 'pacification' which began even before Munich and which is being carried out under the new order of tyranny that seeks to spread over every country to-day. The American people have unalterably set their face against that.

"The democratic way of life is at this moment being directly assailed in every part of the world—assailed either by force of arms or by the secret spreading of poisonous propaganda by those who seek to destroy unity and to promote discord in nations still at peace.

"During the last 16 months, this assault has blotted out the whole pattern of life in an appalling number of independent nations, great and small. The assailants are still on the march, threatening other nations, great and small.

"As your President, performing my constitutional duty to give Congress information on the state of the Union I find it necessary to report that the future safety of our country and our democracy is overwhelmingly involved in events far beyond our borders. The armed defense of democratic existence is now being gallantly waged in four continents. If that defense fails, the whole population and all the resources of Europe, Asia, Africa and Australasia will be dominated by the conquerors."

Declaring that it was immature, and incidentally untrue for anybody to brag that an unprepared America, single-handed and with one hand tied behind its back, could hold off the whole world, the President gave warning that no realistic American could expect international generosity, the return of true independence, world disarmament, or even good business from a dictator's peace.

"We must always be wary of those who, with sounding brass and tinkling cymbals preach the 'ism' of appeasement. We must especially beware of that small group of selfish men who would clip the wings of the American eagle in order to feather their own nest.

"There is much loose talk of immunity from direct invasion from across the seas," the President said. "Obviously as long as the British Navy retains its power, no such danger exists. Even if there were no British Navy it is improbable that any enemy would be stupid enough to attack us by landing troops in the United States from across thousands of miles of ocean until he had acquired strategic bases from which to operate."

President Roosevelt proceeded "As long as the aggressor nations maintain the offensive, they, and not we, will choose the time, place and method of their attack. That is why the future of all the American republics is to-day in serious danger. That is why every member of the executive branch of the Government and every member of Congress face great responsibility and great accountability."

Declaring that the American national policy in foreign affairs was based on decent respect for the rights and dignity of all nations large and small, and that the justice of morality would win in the end, President Roosevelt condensed his policy into three points.

First, by the impressive expression of public will, without regard to partisanship, the United States is committed to an all-inclusive national defense. Secondly and similarly, the United States is committed to the full support of all those resolute peoples everywhere who, by resisting aggression were thereby keeping war away from this hemisphere. Third, the United States is committed to the proposition that the principles of morality and considerations of her own security would never permit her to acquiesce in a peace dictated by the aggressors and sponsored by the appeasers. The President declared that he was not satisfied with the progress thus far made in production, and quicker and better results must be obtained. They were behind schedule in turning out finished aeroplanes, but ahead in building warships.

"I shall ask Congress for greatly increased new appropriations and new authorizations to carry on what we began, and for authority for funds sufficient to manufacture additional munitions and war supplies of many kinds to be turned over to those nations, which are now in actual war with the aggressor nations."

The President added: "Our most useful rôle is to act as an arsenal for them, as well as for ourselves. They do not need man-power. They do need billions of dollars worth of weapons of defense.

"The time is near when they will not be able to pay in ready cash. We cannot, and will not, tell them they must surrender because of their present inability to pay for weapons which we know they must have.

"I do not recommend that we make them a loan of dollars with which to pay for these weapons—loans to be repaid in dollars. I recommend that we make it possible for those nations to continue to obtain war materials in the United States, fitting their orders into our own program.

"Nearly all their material would, if the time ever came, be useful for our own defense. For what we send abroad we shall be repaid within a reasonable time following the close of hostilities, either in similar materials or, at our own option, in other goods which they can produce and which we need.

"Let us say to the democracies 'We Americans are vitally concerned in your defense of freedom. We are putting forth our energies, resources and organizing powers to give you the strength to regain and maintain a free world. We shall send you, in ever increasing numbers, ships, planes, tanks and guns. This is our purpose and our pledge'."

"In fulfilment of this purpose we will not be intimidated by the threats of the dictators that they will regard as a breach of International Law and as an act of war our aid to the democracies which dare to resist their aggressions. Such aid is not an act of war even if a dictator should unilaterally proclaim it so to be.

When the dictators are ready to make war on us, they will not wait for an act of war on our part. They did not wait for Norway, Belgium or the Netherlands to commit an act of war. Their only interest is in a new, one-way, International Law, which lacks muturality in its observance and therefore becomes an instrument of oppression.

Declaring that everyone must be prepared to make the sacrifices which the emergency demanded, President Roosevelt said that in his budget message he would recommend that a greater portion of the defense program should be paid from taxation than is being paid at present.

"No person should try to be allowed to get rich from this program. In future days we shall look forward to four essential human freedoms—freedom of speech, and expression everywhere, freedom of and the right to worship God in their own way everywhere, freedom from want, and freedom from fear."

The President concluded: "This nation has placed its destiny in the hands, heads and hearts of millions of free men and women and its faith in freedom under the guidance of God. Freedom means the supremacy of man's rights. Everywhere our support goes to those who struggle to gain those rights or keep them. Our strength is in our unity of purpose. To that high conception there can be no end save victory."

Opinion in Britain

The speeches of Mr. Joseph C. Grew, United States Ambassador to Japan, and Mr. Yosuke Matsuoka, Japanese Foreign Minister, were published everywhere in the United States and they stand out in contrast to each other and serve to show how far apart are the views of the countries they represent. It also showed the width of the chasm which Admiral Kichisaburo Nomura, new Japanese Ambassador to the United States, must try to bridge when he comes to Washington.

The feeling in Britain seems to be that Mr. Grew, as in his "horse's mouth" speech in October, 1939, made a statesmanlike utterance while Mr. Matsuoka displayed misapprehension at the strength of American public opinion regarding Far Eastern events.

There is agreement here with Mr. Matsuoka when he said that candour compelled him to admit that Japanese-American relations are severely strained but there is no agreement when he proceeded to say that the cause of it was owing to American apprehension of Japan's aim and aspirations.

There are the widest feelings in Britain that Japanese aims are only too clearly apprehended and that they stop short at nothing on this side of a Japanese hegemony of Asia and Australasia.

Virtual Declaration

All Japanese metropolitan papers bitterly attacked President Roosevelt's message to Congress, which they called "a virtual declaration of war against the Axis."

The *Nichi Nichi Shimbun* emphasized a part of President Roosevelt's message that "the United States should become an arsenal for democratic countries" and stated that this was virtually a declaration of war towards those countries who were now fighting Britain and Chungking.

The paper voiced the firm determination of the Japanese Imperial forces that they were prepared to frustrate American plans to ship ammunition to Chungking through the Japanese blockade.

The *Hochi Shimbun* stated that this was just another example that the widening gap between the United States and the Axis powers had been created solely by a series of challenging American attitudes, such as more positive assistance to Britain by all means, short of war, the advance of loans to Chungking, and a common strategy by the British, United States and Australian navies against Japan.

American Viewpoints

Eighty per cent of the American Forum poll, it was revealed, favored the United States stopping Japan by force should Tokyo initiate her southward expansion drive.

The American Forum conducted the poll on the question: "Shall we stop Japan by force?" Eighty per cent of those answering favored forcible means while twenty per cent opposed such methods. The Forum did not disclose the number of answers submitted but it was believed to have been small, the poll was conducted by the *New York Post*.

In connection with the poll the Forum presented opposing views by Rear-Admiral Harry E. Yarnell, who before his retirement was Commander of the Asiatic Fleet during the Far Eastern crises of 1936-39, and Mr. William R. Castle, Ambassador to Japan during the Naval Arms Conference of 1930.

Admiral Yarnell, favoring use of force to stop Japan, asserted that "all of our interests in the Far East are threatened by—extension of Japanese dominance by force of arms over Eastern Asia and the southwestern Pacific and expulsion of our citizens and our commerce from that vast area."

Mr. Castle asserted that "the only strictly American interests involved in the Far East are trade interests and Americans seem wholly to have forgotten that far and away our most important trade is with Japan. If we go to war with Japan we shall not only immediately lose that trade but shall very probably decrease our opportunities to trade in the future anywhere in the Orient—Japan is the most highly industrialized and progressive nation of the Far East—the nation, therefore, which is most likely to hold economic leadership."

Admiral Yarnell declared that "In Asia, as well as in Europe, appeasement has been a failure. Both Germany and Japan appear to regard it as a sign of weakness, it has won from them only contempt followed by increased acts of aggression. We must be prepared to defend our legitimate and vital rights and interests by force if that becomes necessary.

"The very fact that we are ready and willing to defend our rights may prove to be a far more effective deterrent to further aggression on the part of Japan than a policy of appeasement which, interpreted as timidity, has so signally failed thus far. If we are not willing to defend our just rights we will soon have no rights to defend.

"The war in China and the war in Europe are one and the same war with three dictator nations bound by a military treaty against the Democracies of the world. If civilization is to survive, these military despotisms must be overthrown and government in these nations must be restored to men who understand honor and justice and who realize that war and conquest will bring only misery to their own people.

"Such men there are in each of those nations but to-day they are exiled and silent for obvious reasons. Without this there is little hope for a return to decency in international relations and a lifting of the crushing burden of armaments for all nations."

Mr. Castle, discussing defense of the Philippines as one reason for opposing Japan's expansion, pointed out that "the Philippines are nearly independent now and we have promised them their freedom in a few years. Furthermore the Philippines appear to be perfectly safe unless we blunder into war with Japan in which case we cannot protect them.

"One thing is certain: our attempt to dabble in foreign power politics has brought us to the point of war and to the tragic state where, for the first time in our history, if we get into war we shall have enemies on both sides. What friends of Britain forget moreover is that it has put us in a position where if we should be drawn into war through the Far East, we should be unable any longer to help Britain.

"The British realize this and dread a Japanese-American clash. We should have to keep our fleet in the Pacific indefinitely—or at least until our navy was doubled in size—and this would make us helpless in a crisis to support the British Fleet in the Atlantic.

"The advocates of vigorous action against Japan answer by saying that since Japan does not want to fight us there is no danger of war. This is a weak dam to protect us from the rising flood—it is wishful thinking, a proud people will not endure more than a certain amount of prodding, especially if the attacks come from a stronger nation.

"Finally, if war should occur between Japan and the United States could anyone define its purpose? Could it possibly be of advantage to this country or to any nation in the world? That question cannot be answered affirmatively."

Premier Addresses Nation

Premier Prince Fumimaro Konoye, in his New Year message to the nation, paid tribute to the sacrifices and accomplishments of the people in the past year and called upon still further efforts to conclude the China affair and build a Greater East Asia.

The Premier warned of possible further hardships in the coming year when "various international pressures may be imposed upon Japan."

"I wish, herewith, to express my hearty thanks to the officers and men who have distinguished themselves in operations in various places of the continent since the outbreak of the present conflict and my deepest condolence upon the death of those who sacrificed themselves to the cause of the State during the operations in China. On the other hand, I hope that the wounded will recover as early as possible and wish to express my sincere and profound condolence to the bereaved families on the death of those who were killed in action.

"The Tripartite Alliance which was concluded between Japan, Germany and Italy with a view to setting up world peace has been strengthened in the light of the great spirit on which the Japanese Empire has been founded and the first step has been made for establishment of the desired mutual prosperity sphere in East Asia with China, Manchoukuo and Japan as the center, as a result of conclusion of the basic treaties among the three countries.

"Meanwhile, in Europe the projected reconstruction program is making steady progress under the guidance of the two signatories, Germany and Italy. However, it is easily imagined that there will be various difficulties and hardships in achieving the final objective of Japan in view of the present situation wherein rapid development is being made in various fields of the world, including those of thought, and culture.

"At this juncture, the nation should be fully prepared to meet any eventualities, on the assumption that various international pressures may be imposed upon Japan this year. It is not too much to say that the everlasting peace and prosperity will be gained through such a thorny way. In greeting the New Year, we are grimly determined to cope bravely with various difficulties and hardships, by bearing what is unbearable and unprecedented in the history of Japan.

"Nothing is more requested to-day for the nation than the firm determination to cope with the situation and the solid unity of the 100,000,000 people for that purpose. The history of Japan eloquently speaks of the character of the Japanese nation, filled with the traditional patriotism to cope with any eventualities and make the way for that purpose.

"The only way to break through the present situation is to heighten the traditional strength whereby the national spirit has been enhanced, by subjects fulfilling their duties, according to their respective vocations. Through this way alone the projected establishment of a high degree national defense state will be realized and the mutual prosperity sphere in Greater Asia will be set up.

"Those are brave men in the true sense of the word who can find great hope in the future of the State, by abandoning speculative views thereon and realizing the actual rapidly developing situation. In this sense, the nation should realize the actual situation with a constructive attitude.

"Therefore, I wish to conclude this New Year greeting, hoping the nation will cope with the present difficulties and enhance the great spirit of the Japanese, by bearing various hardships and want with which Japan is at present and may be in the future confronted."

Address of Foreign Minister

Reviewing the Japanese foreign policy in his New Year message, Foreign Minister Yosuke Matsuoka, according to Domei, says as follows:

"The entire human society is now thrown into the arena of a life or death struggle. In welcoming the advent of the 2,601st year of the Empire amidst the constant din of the so-called three dimensional war, we cannot help but be filled with deep emotion.

"We have now entered the year of the China affair with our officers and men in the front lines and the people behind the guns engaged in a strenuous endeavor to attain their ultimate objective. Now the Japanese people have spent nearly ten years since the start of the Manchurian incident bearing the strain and stress of the situation, unwaveringly redoubling their efforts. In the meantime, Manchoukuo has witnessed a steady development of her national fortune and its co-operation with Japan has increasingly been strengthened. As regards the Republic of China, it concluded, shortly after celebrating the return of its capital to Nanking under the new Government headed by Mr. Wang Ching-wei, a basic treaty with our country for the adjustment of Sino-Japanese relations. Moreover, with the issuance of a joint declaration by Japan, Manchoukuo and China, solid harmony among these nations came into being. Japan has thus taken a great forward step toward the construction of a new order and advanced towards the fostering of the spirit of Kodo, the Imperial Way.

"Glaring exploitation, marked by the strong preying upon the weak, used to be relentlessly practiced in international life during peace and war. The controlling power of gold, suggestive of the cumulative effect of this exploitation, has long been monopolized by the insatiable minority nations. The old order which is based almost entirely upon such a condition of affairs has subjected the majority to a menace of suffocation. They wanted to insist upon their right of existence through peaceful channels, but the minority nations in power have refused to listen to reason with the result that a catastrophic situation has developed leaving no other course for the majority nations but to resort to force in their efforts to realize their just aspirations.

"Construction of the new order, however, cannot be affected by mere destruction of the old one. The ultimate objective of the new order is to realize an international life of common existence and prosperity which is mutually profitable, by weaning human society from exploitation of the weak by the strong for which materialism is to blame, and enabling all the nations and people to have each its proper place, to determine and develop its own destiny, to give full play to its characteristics, and to minister to each other's needs. The Hakko Ichiu, namely the ideal which inspired the founding of the Japanese Empire, clearly indicates the way to be followed.

"Viewed in this light, the violent destructive operations now going on in the East and West, are preceding magnificent and epochal constructive work which is to come. The first World War of more than two decades ago, the current second European War the China affair, all these are after all but struggles preceding an unprecedented reformation of the world.

"Last year was an eventful one rarely found in the annals of the world. It closed upon humanity in breathless anxiety and bewilderment. What will the New Year, the 2,601st year of the Japanese Empire, bring to this country in particular and the world in general? Will it be auspicious or inauspicious? I can neither foresee nor judge which it will be. In greeting the New Year it may sound impropitious, and it is, indeed, the last thing in the world that I wish for, but in my inner-most heart I fear lest this year may perchance prove to be a most tragic and most unfortunate one for the entire mankind. I pray to God and wish all truly God-fearing people throughout the world to co-operate with me, with the same reverence as mine, in saving this year from degenerating into the first year of destruction of modern civilization.

"This is my most earnest appeal addressed to them. It is my fervent desire that the New Year will become the first year of the world revived under a new order in the true sense of the term with the foundation of a fair, lasting and real peace firmly built throughout the world, instead of becoming the year of collapse of modern civilization or the initial year of its downfall. This desire is not limited to me alone. It is the heartiest desire of the whole Japanese nation. In fact, this is the very spirit in which the pact among Japan, Germany and Italy was conceived and which lies at its basis.

Warns Against Optimism

Little hope for the early total collapse of the Chungking Government, "unless some radical change occurs in the world situation in the future," is seen by Colonel Hayao Mabuchi, chief of the army press section, in an article in the *Nichi Nichi*, in which he warns the Japanese people against complacency and over-optimism.

"Many people in this country," he says, "seem to have an idea that the conclusion of the tripartite alliance has turned the international trend in favor of Japan, but in my opinion it is now steadily drifting towards the other direction—favorable to the Chungking régime.

"For Britain and America finally have determined to help out the Chungking Government following the conclusion of the tripartite pact, and accordingly there is little hope for the total collapse of that régime unless some radical change occurs in the world situation in the future.

"The present China affair is complicated—so complicated that it cannot be comprehended thoroughly by mere common sense. Japan is fighting the troops of General Chiang Kai-shek on the soil of China, but the defeat of these troops will not bring about the solution of the current Sino-Japanese hostilities.

"Most of the Chinese now collected under the banner hoisted by General Chiang represent the cream of the Chinese people with flaming love for their country. Standing behind them are Britain, America and other countries which intend to maintain the old order in East Asia by helping out the Chungking régime in its struggle against Japan.

"Japan should recognize fully the strenuous efforts, which the anti-Japanese camp at Chungking have been making. The Japanese army can defeat its enemies, and this embedded in the minds of the Japanese has brought the feeling that Japan has already won the victory over China.

"The Chinese to-day are divided into two great camps. One seeks to reconstruct China through peace and the other, through fighting to the last. Both intend to make China an independent country. In this respect, the Japanese should not see China and the Chinese through a glass darkened by prejudice and dogmatic views.

"It is all well for Japan to advocate the establishment of a new order in East Asia or the construction of a Greater East Asia Co-prosperity Sphere, but it would be of no good unless Japan becomes powerful enough to execute these projects by itself, if need be.

"If Japan has no real strength, any treaties and agreements Japan may conclude with other countries would be nothing more than pieces of waste-paper as has been proved by Germany.

"It is no time for the people of this country to indulge themselves in mean struggles in pursuit of their own interests. It is high time for them to push forward vigorously not only for the settlement of the present China affair but for the establishment of a super-defense State by speeding up the rearmament of the country and expanding the productive power with all their might."

Japan To Carry On

Japan fully intends to carry out her program of a Greater East Asia and will not be diverted therefrom, Mr. Yakichiro Suma, new Japanese Minister to Spain, said at Honolulu recently.

Mr. Suma, who formerly was spokesman for the Japanese Foreign Office and prior to that time was counsellor in the Japanese Embassy in Washington, arrived at Honolulu on the *Nitta Maru en route* to New York and his new post in Spain.

Although Japan will not be diverted from her announced course of action in East Asia, Mr. Suma said, he declined to name any specific areas involved.

Japan signed the tripartite pact, he said, "in an attempt to insure peace in the Pacific and not to promote war with any other nation.

"We are not aiming at trouble with the United States, despite the pact," Mr. Suma said. "Our views occasionally are misrepresented."

Mr. Suma said American sentiment regarding Japan appears unchanged since he left Washington in 1938, although tension between the two countries was not eased by recent events such as U.S. State Department pronouncements, U.S. Fleet movements, remarks of American leaders regarding Japan, and evacuation of Americans from the Orient.

Despite such occurrences, however, Mr. Suma said he was not pessimistic and urged that everything possible be done to avoid friction.

"We were reticent, for example, regarding President Roosevelt's address last week because we had no desire to cause trouble and did not wish to make sensational remarks," Mr. Suma said.

Referring to Soviet-Japanese relations, Mr. Suma said they were improving and that Lieutenant-General Yoshitsugu Tatekawa, Japanese Ambassador to Moscow, was getting results.

Questioned regarding China Mr. Suma replied :

"China is vast. It will take time to bring our operations to a successful conclusion but progress is steadily being made according to military schedules."

Raiders In Pacific

At least two and probably more German raiders have been prowling in the South Pacific since last August, survivors of British, French and Norwegian ships they captured reported at Melbourne on January 9.

The survivors—496 of them—were from 10 ships sunk by one German raider during the past several months and were landed December 21 on the islands of Emarau in the Bismarck Archipelago.

Survivors said that at least two German raiders bore Japanese names and flew Japanese flags.

The survivors, including 70 women and seven children, recently were rescued from the island and brought to Australia. They comprised members of the crews and passengers from ships sunk.

An official announcement said the ships sunk included the Rangitani, Holmwood, Notou, Ringwood, Triona, Triadic, Triaster, Vinni, Turakina and Komata.

Survivors said that attacks on their vessels came suddenly in the darkness, with the raiders threatening against any S.O.S. calls.

Some survivors said they were well treated, while others charged that as many as 123 persons were kept under hatches for three days without water.

The islanders' motorboat enabled the survivors to contact Kavieng, New Guinea, from where doctors and stores of food came to them on Christmas Day.

The prisoners were landed during bad weather on December 21 because the prison ship's food supplies were becoming low.

The Komata's first and second officers were killed in attacks members of the ship's crew said. Other seamen said the British Turakina fought for two and one-half hours on August 20 before surrendering. Nearly two-thirds of the Turakina's crew of 58 were reported lost. Survivors of the Turakina battle still were held by the raider, it was said.

The British Ringwood's and the French Notou's crews still were held by the raider, survivors said.

A survivor said that one raider carried the name *Manyo Maru* was manned entirely by Germans and was provisioned from a motorship near Tokyo.

The *Manyo Maru* hoisted a swastika just before shelling one British ship, the survivor said.

"We were aboard the *Manyo Maru* for 13 days, sailing in the vicinity of what obviously were Japanese-controlled islands."

Both raiders he saw were heavily armed, the survivor declared.

Nanking Regime Opens Bank

Following a ceremony presided over by Mr. Chou Fu-hai, Minister of Finance of the Nanking régime and concurrently Governor of the new institution, the Central Reserve Bank of China, chartered by the Wang Ching-wei Government as its bank of issue, formally opened its doors for business at 10 o'clock.

Among the officials of the newly-opened bank will be Dr. Masutaro Kimura, former director of the Tokyo Chamber of Commerce and Industry, who is regarded in informed Japanese quarters as one of the leading Japanese students of the Chinese monetary and banking system. Dr. Kimura is on his way to join the Central Reserve Bank, according to Japanese reports, having left Tokyo on January 3, following the receipt of an invitation extended to him by Mr. Chou Fu-hai at the end of last year.

New Bank Attacked

The decision of the Wang Ching-wei régime regarding the establishment of offices of the Central Reserve Bank in Shanghai and Nanking simultaneously is a measure to meet the big deficit in the Nanking budget, says the *Sao Tang Pao* organ of the Chinese Army in Chungking in an editorial.

A special dispatch to the Chinese daily reports that the monthly expenditure of the Nanking régime now totals $16,000,000 but that the monthly revenue reaches only $4,000,000 to $6,000,000.

While the capital of the new bank is said to be $100,000,000, the newspaper claims that no mention is made in regard to what currency the new bank's capital will be in.

With the establishment of the Central Reserve Bank it is pointed out that Nanking aims, in the first place, to absorb Chinese National Currency in the occupied areas for the purchase of foreign exchange; secondly, to eliminate the circulation of National Currency by enforcing the use of the new notes as legal tender ; thirdly to force merchants in the occupied areas to buy and sell foreign exchange through the new bank by control of the exports from these areas.

Aircraft For China

At least 400 warplanes may be released to China by the United States, the New York *Herald Tribune* said on December 30.

Quoting authoritative Washington quarters, the *Herald Tribune* said at least 400 pursuit planes and bombers, including six of the United States Army's famous Boeing "Flying Fortresses," may be placed at China's disposal by the United States.

The New York *Herald Tribune's* dispatch from Washington came right after President Roosevelt's "fireside chat" broadcast in which he said that the United States would grant China further aid.

The *Herald Tribune's* report indicated that the United States would provide China with vitally-needed aerial equipment.

The United States at the end of November granted China a loan of U.S. $50,000,000 and made arrangements for an early allocation for another U.S.$50,000,000 for purposes of monetary protection and management as between American and Chinese currencies.

The White House at that time also announced that the U.S. Metal Reserve Company was arranging to purchase U.S. $60,000,000 worth of tin, wolframite and antimony from China.

Japan's Trade Increases

A summary of Japan's trade for eleven months ending with November this year, was issued by the Ministry of Finance.

According to the review, Japan's total exports during the period mentioned, including domestic and foreign, totalled Y3,617,000,000 as against a total import amounting to Y3,328,000,000 leaving a favorable trade balance of Y289,000,000.

Comparing these figures with those of the corresponding period last year, those for the present period exceed by

Y158,000,000 in export and Y533,000,000 in import.

The trade review explained that a comparatively large increase was noticable in Japan's exportation toward Manchoukuo, Kwantung Territory and China, in addition to a slight increase in export to other foreign countries.

Japan's export to European countries and Africa has been affected by the European War, the resume stated, while that to the North and Central America remained about the same as last year. A noteworthy increase of exports to the South Seas, however, was recorded thus bringing the total of Japan's exports to compare favorably in general with last year.

Referring to commodities exported, the statement said that an increase was recorded in cotton fabrics and rayon and that raw silk was pegged at the same mark. A slight decrease in canned provisions was recorded however.

Commenting on Japan's import, the announcement declared that the increase of imports was mainly due to the increase in prices of raw cotton and wool and not due to the increase of their quantity brought into Japan. With the exception of beans, other main items of imports also saw similar increases in price.

In its summary, the official review noted with satisfaction that Japan's trade abroad was on the trend of further increases, especially with Manchoukuo, Kwantung Territory and China and was making favorable progress with specified countries, despite the great handicap caused by the War.

Suma Optimistic

Should United States funds be used to stabilize China's currency, it might help Japanese business interests in China, Mr. Yakichiro Suma, the Foreign Office spokesman, said.

" In the event some of this money is used for protection of Chinese currency," Mr. Suma said, " it might be helpful to our business interests in Shanghai, however, the psychological effect of such matters is much more important, and the psychological effect of this will be to cause increased Chinese resistance."

Mr. Suma expressed only sarcastic non-surprise at the attitude towards the Nanking treaty taken by Mr. Cordell Hull, U.S. Secretary of State.

" It was what we expected," Mr. Suma said, terming it the same " dear old attitude of the United States."

The U.S. loan to China had long been expected by Japan, Mr. Suma said, recalling that Mr. T. V. Soong, the head of the Central Bank of China and former Chinese Finance Minister had been in Washington for some time negotiating the loan.

Attitude Unchanged

" There is no change in Japan's policy towards the Netherlands East Indies," stated Mr. Yakichiro Suma, the Japanese Foreign Office spokesman at a press conference on December 2, adding that Mr. Kenkichi Yoshizawa, the newly-appointed delegate to the Batavia parleys, would be charged with the duty of smoothing out relations between the two countries.

The spokesman pointed out that Mr. Yoshizawa was a veteran diplomat and statesman, and that his parleys with the Dutch authorities would not be limited to the oil question but would include many other questions affecting the two countries.

Mr. Yoshizawa's appointment would free the present delegate, Mr. Kobayashi, Japanese Minister of Commerce and Industry, whose presence was badly needed in Japan in connection with the forthcoming meeting of the Diet.

Turning to the alleged refusal of the Dutch authorities to permit the entry into the country of Commander Tatsukichi Mishiro, Japanese naval officer, on his arrival in Batavia by air from Singapore on November 28, the spokesman said that the Japanese Government had received no official report from Batavia on the subject, and presumed that the local authorities were dealing with the matter.

Mainly economic and financial questions will be discussed in Tokyo at the forthcoming series of conversations between the Japanese Government and the French Indo-China delegation, stated Mr. Suma.

Questioned as to whether the visiting delegation would include delegates from France as well as French Indo-China, the spokesman admitted that the delegation " is a sizeable one," adding that this fact shows the importance attached by the French authorities to the forthcoming parleys. The spokesman asserted, however, that Japan had nothing to do with the selection of the personnel of the French delegation.

Facilities Granted

Special military and naval facilities in Indo-China have been granted to Japan for the " continuation of its operations " to establish a " new order in East Asia " and settle the China conflict, the Vichy Government announced in an official communique.

The Japanese, the communique continued, have assured the French Government that they would respect the rights and interests of France in the Far East, particularly the territorial integrity of Indo-China and France's sovereign rights over all parts of Indo-China.

In return, the French Government resolved to grant special facilities to the Japanese Government for the Imperial Japanese Army and Navy in Indo-China for the continuation of its operations, the communique said.

The French and Japanese military authorities in Hanoi have agreed on the military and naval facilities which are to be granted Japan, the communique said.

For the purpose of establishing a new order in the Far East and settling the China conflict, negotiations were held in Tokyo in an amicable spirit, on fundamental problems between Mr. Yosuke Matsuoka, Japanese Foreign Minister, and M. Charles Arsene Henry, French Ambassador to Tokyo, the communique added.

Apparently fearing American retaliation for the Japanese invasion of French Indo-China, the Japanese Foreign office reiterated Japan's objections to any Anglo-American agreement granting the United States Fleet the use of Britain's great naval base in Singapore.

Some circles in Tokyo believed that the United States would react to Japan's actions in Indo-China by accepting Britain's offer of the use of the powerful Singapore base.

" We do not think that the situation warrants such action," the Japanese Foreign Office spokesman, Mr. Yakichiro Suma, told the press however. " We do not think that such an agreement could be put into force without due regard for Japanese interests."

Report Is Denied

London dispatches purporting to reveal an agreement already reached among Britain, Australia and the United States for common defense of the three Powers' interests in the Pacific area have been described as " premature " in official sources in Washington, according to the *New York Times*.

It is pointed out in Administration quarters that although negotiations have been continuing among the three nations, no proposal of a definite character has been advanced yet by any of them.

President Roosevelt, presiding at his first post-election press conference, scouted the London report that Great Britain, the United States and Australia have reached an agreement in principle on defense cooperation in the Pacific, including the joint use of bases.

" I am sure the information did not come from high official sources as claimed by the report," he declared. The President mentioned the story on his own initiative after reporters questioned him regarding other reports emanating from Belgium hinting the possibility of a German peace move.

After dismissing these reports with the remark that he never heard of them, the Chief Executive went on to say his attention had been called to the London report supposedly based on information from official sources regarding a defense accord in the Pacific.

The President expressed certainty the story had not emanated from such sources, and said it sounded like just another press report.

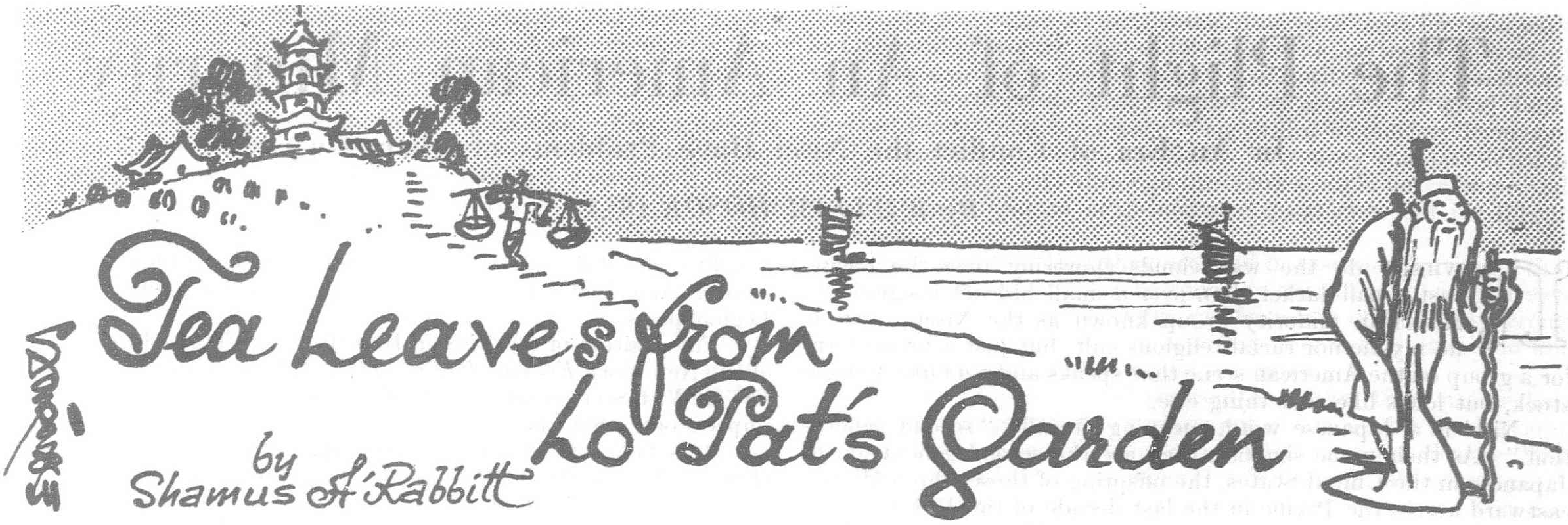
Hits Japanese Shipping

A United Press dispatch reports that Saigon trading companies on January 21 received cables from Hongkong stating that cargoes shipped on board the *Tottori Maru* would not be allowed to unload at Singapore.

The *Tottori Maru*, a Japanese vessel, was due at Saigon on January 28.

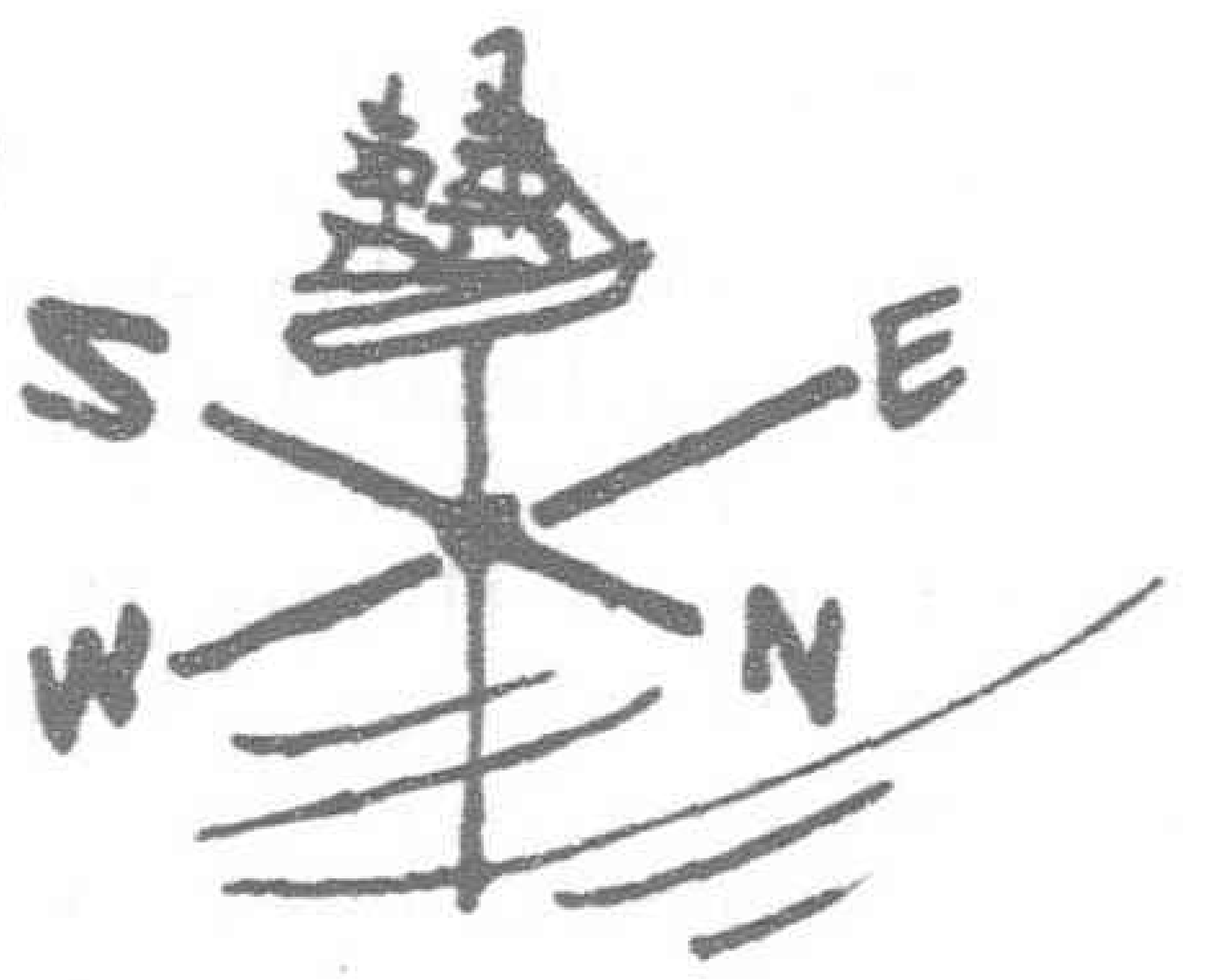
The order also concerned other Japanese ships travelling to Singapore, via Saigon, and amounted to a British boycott of Japanese freighters between Indo-China and the British colonies.

The British move was believed to be intended to force Indo-China to allow more British ships to carry Indo-China commerce.



Tea Leaves from Lo Pat's Garden

by
Shamus A'Rabbitt



In the conversation of friends
We learn of ports off the course of our lives—
Their soundings
In foreign harbors
Often mark our charts
And guide us
Over strange seas.

* * *

The problem of marriage
Would be simplified
If the youth of woman
Would survive the vigor of man.

* * *

Early marriage
Is a transubstantiation
Of the wild oats of young manhood
To the bread of life—
But it often leaves
Husks for middle age.

* * *

A man who believes advertising pays in business
Will often hide his affections from his wife
And wonder why she thinks his stock has run short.

* * *

Some business men go to great trouble
To keep their stock conditioned for sale
But let cobwebs grow on their love.

* * *

The effect of emotions on History
May be a sad tale of human suffering
But emotions are also responsible for
The largest measure of human kindness.

* * *

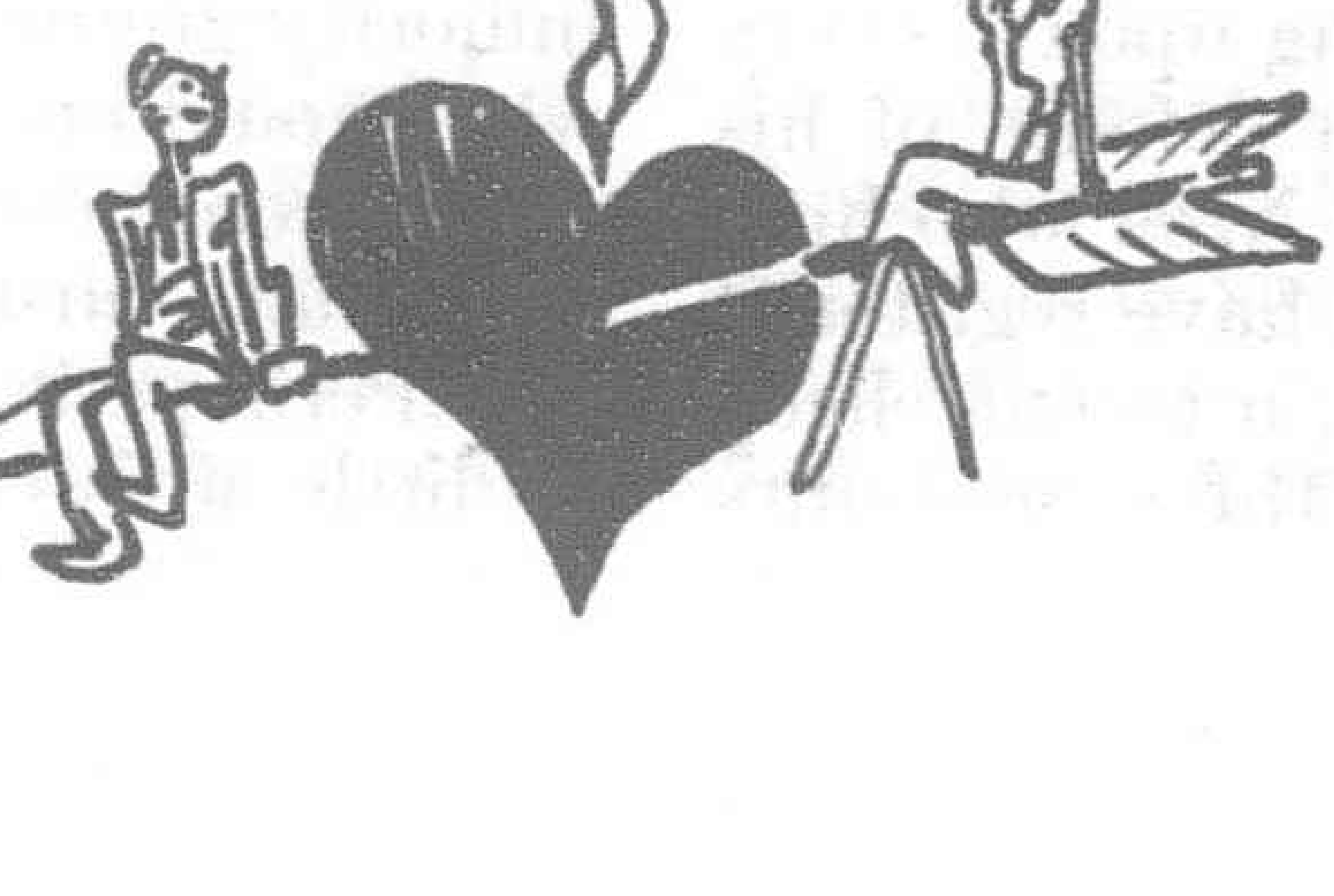
The virtues of childhood
Often are traps for adolescence.

* * *

The over-generous soul
Is often punished by society
Whilst the crabbed, mean, shrewd and selfish
May remain as sterile as a blasted tree
And yet—
Be upheld as paragons of virtue.

* * *

Those who have the intelligence
To blame themselves
For their failures
Seldom try
To overthrow
the state.



Those with mental cylinder dimensions
So limited that
They have time
To criticize their neighbors
Are but advertising
Their own senility.

* * *

If Mr. Average Man
Enters "society"
He dares not enjoy a laugh
For fear of derision
From the bonton
Who mistake arched eyebrows
For social distinction.

* * *

To keep our jobs now-a-days
We must not laugh heartily,
We must wear uncomfortable clothes,
Look wise and worried,
Act like automatons,
And above all—
It must be kept a dark secret
If we enjoy Nature,
Have romance in our hearts
Or poetry in our souls.

* * *

I'm sure my puppy thinks me a fool
For not rolling on the grass with him—
So do I!

* * *

Over-stimulation
Leads to abnormal acts—
Under the influence of fatigue
We are no more normal
Than when over-stimulated.

* * *

Fatigue magnifies our troubles
As the glass intensifies the sun's heat.

* * *

Trouble that oppresses us when tired
Passes like money through the hands,
When we are vigorous enough to enjoy repose.

* * *

'Tis not work which makes us worn and haggard
But being forced to toil when weary.

* * *

Some of us spend our strength
Like profligates their coin—
And blame the world for the weariness
Which unfits us for life.

The Plight of An American Minority

In An Era of Conflict the Nisei Have Problems of Their Own

By WILLIAM HOSOKAWA

Nowhere do the war clouds glowering over the Pacific cast a pall darker than over a small but not insignificant American minority group known as the Nisei. This is no mystic nor racial-religious cult, but just a broad term for a group on the American scene that speaks and acts like Yankee stock, but looks like something else.

Nisei is a Japanese word, meaning literally " second generation." As their name signifies, they are the second generation of Japanese in the United States, the offspring of those who migrated eastward across the Pacific in the last decade of the 19th century, and the first 24 years of the present one. After that, American legislation stopped this minor influx.

Like any other group of immigrant offspring in the American melting pot, the Nisei enjoy American citizenship and all the benefits of education and opportunity in the U.S.A. They number, roughly, less than 200,000, with slightly more than half of the number residing in the Hawaiian Islands. They range in age from infancy to middle age averaging perhaps 20 years ; men, women and children there are not enough of them to fill the seats of two good-sized football stadiums.

As the Nisei as a group approach maturity, there is a growing consciousness of the world that surrounds them, a realization that they are a component part of it, and an awareness of their peculiar position in it. American by birth, training and choice, they are nevertheless uneasy over the widening breach that is appearing between their native land—which is also the adopted home of their parents—and the tiny island nation across the Pacific from which their race has sprung.

Theirs is a wholesome, healthy concern over the possibility of a war that to them seems unnecessary and avoidable, a concern that is born of genuine reluctance to see America involved in the most senseless of wars, a concern that deplores any course that threatens to bring about disrupted relations with a nation which by all imaginable reasons should be on the best of terms with the United States. That the Nisei's interest should be focused on the Pacific front is only natural in view of cultural and sentimental as well as business ties.

The Question of Allegiance

Contrary to the suspicions of a misinformed few, however, there is little question of divided allegiance between Japan and the United States, for the vast majority of Nisei. A recent survey in Southern California, conducted by the Los Angeles Equality Committee, revealed that an overwhelming majority of Nisei look upon the United States as their permanent home. In a questionnaire submitted to 3,100 high school students, they were asked whether they had made up their minds about where they wished to live permanently, and if so, where. Tabulations showed 2,993 answered " the United States ", 45 were uncertain, and the others said they would live in Japan, most of them because they were joining their parents.

In any American crisis, the Nisei have made it clear that they are ready to shoulder arms and march off to wherever the President of the United States may order, side by side with their fellow-Americans of British, Polish, Scandinavian, German, Italian, Irish or any other kind of national background. In testimony is their ready response to the provisions of the national conscription act, even while American-Japanese relations were becoming more strained.

Last fall, at the national convention of the Japanese American Citizens' League in Portland Oregon, the President, Walter T. Tsukamoto, Sacramento attorney and a captain in the United States Army Reserve, struck the keynote by calling upon " every American of Japanese ancestry to offer his life in defense of his country." Tsukamoto is only one of a number of Nisei who hold reserve commissions, while some 16,000 other Nisei have registered for service under the conscription act. In Hawaii, a recent check showed 40 Nisei National Guardsmen, including three sergeants and five corporals. During the World War several hundred Nisei were in American service, and now they have their own American Legion posts.

The position of the Nisei in Hawaii was questioned by a reader of the New York *Evening Post* recently, and the eminent sociologist, Dr. DeWitt Stetten wrote in to the newspaper to correct the misimpressions. Said he in part :

" As far as the loyalty of the native-born (with reference to Hawaii—The author) Japanese is concerned, the opinion of the white Americans in the territory is unanimous—these Japanese are regarded as one hundred per cent loyal Americans and many of the white inhabitants have stated to me that they are really better American citizens, more devoted to our country and more patriotic, than the whites themselves. Occasionally, a native-born Japanese has gone to Japan for a visit or actually with the intention of remaining permanently in the land of his forefathers. Invariably, he returns to Hawaii thoroughly disillusioned with conditions in Japan, entirely out of sympathy with her politics and definitely determined to remain in America. The following charming story, told on the Islands, beautifully illustrates the attitude of the native-born Japanese toward America.

A few years ago a Japanese war vessel paid a visit to Honolulu. The teacher of a class of native-born Japanese children thought it would be of great educational value to take her class to visit the warship. The children were much interested, and the next day the teacher asked them to draw a picture of the ship. Her instructions were carried out and on every picture of the ship every child had drawn in an American flag ! "

How the Nisei Differ

Actually, not many more than two or three out of every hundred Nisei have ever visited Japan, and most of them speak deplorably poor Japanese, if at all. They are longer and cleaner of limb than their parents, and more handsome of features. A six-foot Nisei is no longer a rarity, and they compete favorably with their schoolmates athletically and scholastically.

The influence of the closely-knit Japanese family system has helped to train the Nisei as law-abiding citizens, and their delinquency rate is remarkably low despite the unfavorable environment that is so often the lot of immigrant groups. For instance, in Seattle, Washington, the juvenile delinquency rate in a predominantly Japanese area located on the " wrong side of the tracks " district, is bettered only in Laurelhurst, an exclusive residential section.

These Nisei have grown up to become doctors and lawyers, importers and exporters and merchants, clerks, shopkeepers, mechanics, greengrocers. They help raise, pack and ship the produce that feeds the nation : lettuce in the Imperial and Salinas valleys in California and in the farming districts of Western Washington and Southern Idaho ; grapes near Fresno ; prize celery in Salem, Oregon and in the Los Angeles area ; apples and pears in Washington's Yakima, Oregon's Hood River, California's Watsonville ; melons and canteloupe in Yakima and the Imperial Valley, potatoes in Yakima and Idaho. They help catch and can salmon in Alaska and on the Columbia ; sardines in Monterey ; tuna at San Pedro. They form 28.5 per cent of the Hawaiian population and engage in its manifold livelihoods. They work in the sweet-smelling sawmills of the Pacific North-west, teach in Universities, drive trucks, run restaurants, drug stores and barber shops, play golf and tennis or go fishing on Sundays, read the comic sections, go to the movies and listen to the radio.

They are in fact an integral part of the American scene in body and in spirit, a small, peaceful, industrious and creditable minority group among the many American minority groups. Then why should one hear about the Nisei, be told about their problems and become concerned about the part they will play in America's immediate future ?

Perhaps it is because the American public as a whole knows so little about the Nisei—because they do not realize that the

Nisei are in fact Americans—that they regard this small group with suspicion. Perhaps it is because the American public, due to racial difference, has not accepted the Nisei as American, despite their admirable record.

This, then, evolves down to the color line. The American public does not realize yet what newspaperman William P. Gray did when he wrote in his paper, the *Portland Oregonian*: "Despite their brown skins, their Japanese blood, the shape of their eyes, they have little in common with the land of their parents. These people are foreigners to Japan."

American Misconceptions

Mr. Gray went on to present the Nisei's dilemna. He said: "What bothers the Nisei is that many Americans do not realize that. To the Nisei, the vastly sad and impelling fact is that they are still regarded, by many other Americans, as foreigners in America. Despite the constitutional guarantees that apply to them as well as to American-born of English, Italian, Irish, Slavic or other descent, they continue to be, in the minds of the American public, Japanese."

One little Nisei school girl put it another way. "We are Americans," she said, "but we must wear an Oriental mask which we can never take off." What she meant was that any European immigrant can buy a suit of clothes, alter his name, drop his accent, and walk down Main Street, an American to all outward appearances whatever his political credo may be and wherever his loyalty may lie. With an Oriental, this is impossible.

Any group so plainly marked and so little understood is a perfect target for unscrupulous rabble-rousers. It can become equally as easily the victim of well-intentioned but misinformed zealots who are campaigning to root out from the United States all that they consider subversive, un-American or alien. Most of these assailants fail to discern between the Nisei, who are Americans, and their parents, who are aliens, since the parents are ineligible to United States citizenship by law. So widespread is misinformation that even Congressmen, who should know the nation if anyone does, have been guilty of making groundless charges.

Only one of the many charges flung at the Nisei has any reasonable sort of basis. That is the dual citizenship problem. When Nisei were born, particularly those that came first, the births were registered at the various Japanese Consulates by the parents, just as children of Americans born abroad are registered at the nearest American Consulate. Under Japanese law, however, these children by the act of registration become Japanese subjects, and are thus liable to military service and other obligations of Japanese subjects if they should visit Japan.

Thus, although they may never see Japan and do not understand a word of the Japanese language, as is often the case, these Nisei have dual citizenship. America demands undivided allegiance. Most Nisei have met this requirement willingly by renouncing their Japanese citizenship. The Tokyo Government has provided for this in a simple process of expatriation. That a larger number of Nisei have not expatriated themselves probably is not due to any considerable extent, to any desire to cling to double citizenship. There is either ignorance of the necessity of going through such a process to renounce unwanted Japanese ties, or else there is an understandable lack of interest and reluctance to undergo what appears to be a thoroughly unnecessary lot of bother about something with which they never have concerned themselves.

Yet, if conditions require such legal steps, the Nisei must not hesitate to comply. Undoubtedly the tense American-Japanese relations will tend to emphasize to the Nisei the necessity for taking required action to remove whatever stigma this may be.

Other charges are usually extremely silly. Nisei cultivating flower and vegetable gardens near airports and oil fields have been viewed with suspicion, but the suspicious failed to realize before raising the hue and cry that those same plots were cultivated by the Nisei and his parents long before the fields nearby became airports, and the hills began to yield oil.

Those Japanese Fishing Boats

San Pedro is always a favorite spot for Nisei-baiting, for not far from the United States Naval anchorages lie the fleets of seagoing tuna clippers, manned by Nisei as well as alien Japanese legally resident in the United States. These clippers are stout craft with long cruising ranges, large holds and modern radio equipment. They are looked upon by the suspicious, pointing to their equipment, as potential enemy minelayers. But fishermen know that boats that range off the Central American coast for tuna must be large and seaworthy, that radio equipment is a legal requirement as well as a necessity for keeping in touch with market conditions.

Once a California Congressman, apparently in good faith, charged that 20,000 Nisei were being drilled in military formation in the Southern California sandhills. His story was circulated in the nation's press, and although the charges could never be proved, the impression created in ill-informed quarters would be difficult to repair.

The Nisei know that they are held in suspicion by many, that there are some who would be quick to misinterpret any careless acts. Thus they tread carefully, not from fear of doing any wrong, but to avoid all possibility of arousing unnecessary suspicion and all the unpleasantness that would accompany it.

Perhaps this matter of persecution within their native land may appear exaggerated to persons out of touch with Nisei groups. In refutation is the following letter, written to the Seattle *Post-Intelligencer*, a Hearst newspaper, by William E. Priestley, prominent businessman and world traveller. Mr. Priestley, who confesses to be "very pro-Chinese in my sympathies," felt constrained several months ago to write the following about American treatment of the Nisei:

"I am the honorary secretary of the China Club, past president of the China Club, and very pro-Chinese in my sympathies. In view of the strained relationship which now exists between the United States and Japan, one aspect of the whole situation should be brought to the attention of all right-thinking Americans. I am alluding to the young Japanese who are born in this country and, consequently, are American citizens.

"The vast majority of these young people are good American citizens. They have a high scholastic standing; they are intelligent and sincerely devoted to American ideas and ideals. They are not responsible for the acts of the Japanese army, and in case of conflict would throw in their lot with the United States. In these days of international conflict, it is so easy to stir up racial antagonisms. These young people are on the spot because of their ancestry. These young people are entitled to our tolerance, our sympathy, and our help. Persecution and insult will only drive them to bitterness; fair play will make them better citizens than they are.

"Whatever the future relations may be between the United States and Japan, let us deal with these young people as fellow Americans, and not as members of an alien race."

Nisei Organizations in the U.S.

It is only natural than a group so conscious of its position as a minority and so fervently desirous of making good should organize to direct and co-ordinate the efforts of individuals. Such an organization was more necessary on the mainland than in Hawaii, for being a younger and smaller minority, the problems the Nisei faced were greater. Twelve years ago, leading Nisei laid the foundation for a national organization known as the Japanese American Citizens League, with its aim embodied in the slogan: "Building Toward Responsible Citizenship." To-day the League with headquarters in San Francisco has more than 50 chapters in Pacific Coast and Rocky Mountain centers. No hyphenated organization, the JACL as it is known, boosts Americanism and Americanism only. As the representative organization for Nisei in the United States, the League has gained widespread recognition from the American public in general, government officials, and such influential bodies as the American Legion, Veterans of Foreign Wars, Daughters of the American Revolution, and others.

Yet this is but one phase of the Nisei's difficulties, difficulties that are met without bitterness. In less troubled times the foremost problem was economic, for the better jobs were beyond the barrier of discrimination. Nisei students established admirable marks as engineers, pharmacists, medical students, designers. But after graduation Occidental employers chose white Americans over the Japanese Americans. Nisei with Phi Beta Kappa keys are not rare, but to-day they may be working as laborers or houseboys for want of anything better.

A few have managed to break through the barrier, as doctors, lawyers, customs brokers, university professors, merchants. Once over the hurdle, they have done well. But the problems are still ahead for the bulk of the Nisei. Of them, James Y. Sakamoto, publisher of the *Japanese-American Courier*, an all-English weekly in Seattle, writes:

"As a minority of minorities, their task of winning a recognized position in the American scheme of things takes on Herculean dimensions. Racially, the second generation is Japanese. At heart, it is American. Socially, it faces a stone wall of discrimination. Economically, it is difficult to find openings, opportunities in which to prove ability and mettle. Civically and politically, the second generation has yet to gain position."

The Nisei take heart in the progress made in the Hawaiian Islands where a comparatively older group in a favorable environment has made notable progress. Among them is Wilfrid C. Tsukiyama, City and County Attorney of Honolulu, a World War veteran. There are four Nisei magistrates of district courts, and a former magistrate is now serving as deputy County Attorney at Hilo. A Nisei, Lawrence T. Kagawa, heads a company, empowered to issue capital stock up to $2,000,000, made up almost entirely of Nisei stockholders, which will operate a streamlined department store in Honolulu. Several of the Islands' leading chemists and professional men are Nisei. One is curator of the Bernice B. Bishop Museum.

Of the 3,332 positions in 187 public schools in the Territory of Hawaii appointed by the Department of Public Instruction, 709, or approximately 21 per cent were Nisei, of whom 587 were teaching appointees. Others included secretaries, librarians and cafeteria managers.

The Nisei in Politics

Politically, 71 Nisei have run for offices in the Territorial Legislature and the Board of Supervisors of the various districts of the Territory since 1922. Of this number 28 were Republicans, four Democrats and 29 Non-Partisan.

On the mainland the Nisei's political endeavor has been limited so far to two attempts for a seat in the lower house of the Washington State Legislature by Clarence T. Arai, attorney, and a captain in the U.S. Army Reserve. Although Arai was unsuccessful, he registered far more votes than there were Nisei voters in his district, Arai also served on the Seattle Public Library Board.

And what of the future? The lot of the Nisei is difficult enough in normal times, and the problems are likely to be intensified manyfold if war should break out between the United States and Japan. The difficulties will not be of the Nisei's making, for their undivided allegiance will be with their country. They may view the hostilities with heavy heart, but when the President gives the command, they will be there to respond. They will be found not wanting.

The Nisei have been pointed out as potential Fifth Columnists. Those who make the charge fail to see that the Nisei by their very physical characteristics are easily kept track of. Standing out so conspicuously, they would be able to do very little stealthy work indeed for their very appearance is their identification mark. The Nisei singularly have been free from any sort of pressure from Japan, a difficulty that American-Italians and American-Germans apparently have not escaped.

This is not surprising in view of Japanese psychology and the traditional code that a man cannot serve more than one master. A Japanese bride when she leaves home, is considered to be gone forever, and she owes her complete loyalty to her new home. A *samurai*, or warrior who through some change of fortune was forced to leave his lord to serve another, was expected to fight fearlessly against his former mates if need be, for his new master commanded his single loyalty.

And so to-day as the war clouds gather, the Nisei hopes and prays and does all that is in his little power to prevent a further deterioration of relations between his native land and his grandfatherland. As a child he learned that some day he would grow up to be the bridge that would span the misunderstanding that lay across the great breadth of the Pacific Ocean. There are grimmer realities now, but he still cherishes that childish ideal together with other understanding and sympathetic Americans.

Statistical Year-Book of the League of Nations

NOTWITHSTANDING present events, the technical work of the League of Nations continues without interruption. Proof of this fact is furnished, *inter alia*, by the appearance of the *Statistical Year-Book of the League of Nations, 1939/40.* This new edition comes at an opportune moment when objective and comprehensive statistical information is more necessary than ever but—owing to the inaccessibility or absence of regular national publications—singularly difficult to come by. In spite of such difficulties the *Year-Book* is highly up to date. It contains figures covering the year 1939—in some cases also the first half of 1940—for a large number of subjects and for all countries of the world; the most recent territorial changes and the monetary measures introduced since the outbreak of hostilities are likewise reviewed in detail.

Population problems are nowadays of considerable topical interest; population statistics accordingly occupy an increasingly prominent place in the *Year-Book.* These statistics deal not only with the present population position of the various countries, but also with their past and prospective future demographic evolution.

The League Economic Intelligence Service estimates the population of the world at the end of 1938 at 2,145 millions, 450 millions being tentatively attributed to China. Population censuses have been carried out recently in three large countries; according to these returns the population of the U.S.S.R. in January 1939 was approximately 170.5 millions; that of the United States, in April, 1940, 131.4 millions, while the population of the German Reich amounted to 79.7 millions in May, 1939. The latter figure includes neither the seven million inhabitants of the "Protectorate of Bohemia and Moravia" nor the 10.5 million inhabitants of territories incorporated since the outbreak of the war.

The birthrate in Germany has continued its upward movement and in 1939 reached 20.3 per thousand (against 14.7 in 1933) in the old Reich, 20.9 per cent (against 12.9 in 1937) in Austria and 21.9 per cent in the Sudeten districts. There was some decrease in the United States, in Denmark, in Hungary and in the Balkan countries, a rise in the Union of South Africa, in Oceania, Sweden and Norway. In the past few decades there has been a general decline in mortality unprecedented in history. Every year millions of lives have been saved as a result of the progress in public health and welfare.

The upward movement in industrial production, which began in many countries about the middle of 1938, continued up to the outbreak of hostilities and, in some cases, notably the United States and Canada, during the whole of the second half of 1939. However discordant the statistics relating to the U.S.S.R. may sometimes be, it is clear that a very striking increase in industrial production and in several branches of agricultural production has occurred in that country in recent years. This increase has been observed, for example, in the case of cotton, linen, tea, sugar, silk, coal, phosphates and various ores, the majority of metals, as well as in machines and motor vehicles. The U.S.S.R. is now the world's principal producer of cereals, beet sugar, flax, hemp and manganese and is among the most important producers of certain oleaginous seeds, cotton, alcohol, petroleum, coal, iron, steel and gold.

The development of industrial technique, often encouraged by a policy of autarky, has led to a growing use of substitutes. The German production of synthetic rubber in 1939 was estimated at 20,000 to 25,000 tons, world production of natural rubber amounting to 1,020,000 tons. Benzol, alcohol and synthetic motor spirit have in certain cases replaced petroleum spirit. In regard to textiles, the past ten years have witnessed a veritable revolution: while the world production of natural silk has tended to decline, the output of artificial silk (rayon) was in 1939 two and a half times greater than in 1930 and the output of staple fibres rose in the same period from 2,800 tons to 490,000 tons.

A review of the monetary history of recent years brings out the spread and scope of the exchange control applied since the war in almost all countries of the world, the United States being a notable exception. As might be expected, public exanditure, so far as information is available, has been rising rapidly. Public debt, and more particularly internal debt, shows a corresponding increase. The floating internal debt of Germany, for expample, rose from 6.5 milliard marks in March 1939 to almost 23 milliards in June, 1940, and its total internal debt from 29.5 to more than 55 milliards. The internal debt of the United Kingdom rose between March, 1939 and March, 1940 from $7,200 millions to $7,900 millions and that of the United States from $40,400 millions to $43,000 millions in the twelve months ending June, 1940. During the same period the increase in the case of Sweden was from 2,600 million to 3,600 million crowns. In Japan the public debt was almost doubled between March, 1938 and March, 1940.

In almost all countries note circulation has tended to rise; in some cases this tendency was accompanied by an increase in the reserves of central banks.

A Monroe Doctrine for Japan

By W. R. CASTLE

(Atlantic Monthly)

I

A JAPANESE Monroe Doctrine? Why not, if it really is a Monroe Doctrine and not an excuse for large-scale annexations? The idea, it is true, sends shivers down the conservative American spine, but there is no reason in the world why it should. If a Japanese Monroe Doctrine means something like Asia for the Asiatics, just as ours means America for Americans, it cannot harm the United States. It would hurt the rest of the world only if the new combination conspired to prevent trade with the western nations. But this seems highly unlikely, since Asia needs to trade with the West even more than the West needs to trade with Asia. Japan is no more likely than any other nation to destroy its own profits.

When President Roosevelt suggested that it would be a good idea to have Monroe Doctrines for Europe and Asia and Africa he had in mind, if anything concrete, some sort of benevolent association of the different groups of nations. For this, of course, the name "Monroe Doctrine" was completely misleading. The Monroe Doctrine does not envisage any association of nations. It is merely a warning to the world, issued by the United States. If you are going to have a Monroe Doctrine for Europe and Asia it will have to be a declaration by some single nation, and that nation would inevitably be Germany in Europe and Japan in East Asia. If those names could be replaced by Great Britain and China, people would be less worried, but it is inconceivable that any effective declaration of this kind can be made by any except the strongest nation of the group.

But if we should decide that we do not approve this Monroe Doctrine for Asia, this flattery by way of imitation, there is still nothing that we can do about it. One of the first tenets of successful diplomacy is not to get excited about something over which we have no control and over which we can never obtain control. In the Far East we do not even want control. It is foolish to protest unless there is a strong possibility that the protest may be effective. A hundred years ago both Great Britain and France cast covetous glances on the Hawaiian Islands, a British officer at one time even going so far as to annex the islands in the name of his country. The American Government immediately warned the world that it would not tolerate the acquisition of these islands by a European power. It was an understandable protest, and it was effective. A similar protest as to Australia or some territory across the Pacific would have been ignored.

But, people ask, why should it be Japan which proclaims this new doctrine of East Asiatic solidarity at just this time? Is its action not similar to that of Italy, jumping in at the end of a war to grab some of the spoils? Of course there is something of this, although Japan does not appear to be seeking territorial gains. Any nation will time its actions to accord with opportunity. But there is another and immediate cause which actually corresponds with recent American pronouncements concerning European possessions in the Western Hemisphere. Japan feels that its own safety may be jeopardized and that the *status quo* of the Orient will be seriously deranged if European possessions in that part of the world change hands. Most discussed of these possessions have been the Dutch East Indies.

Japan is dependent for tin and rubber on these fortunate islands; so, with the addition of British Malaya, is the United States. Because, until recently, British possessions seemed safe enough, Malaya has been ignored and all attention turned to the Indies. So long as the islands belong to the Netherlands, neither nation has any reason to fear that these essential supplies will be cut off. But if they should be taken over by Great Britain or by Germany the situation would be very different. Thus, as the war in Europe developed, the Department of State in Washington and the Gaimusho (foreign office) in Tokyo both expressed their fears over any attempt to occupy the islands by a foreign power. Strange as this may seem to Americans, Japan was just as much afraid that the United States might take over as the United States was fearful of Japan. When Germany overran the Netherlands, the fears of both became more acute, Washington primarily looking for trouble from Berlin, Tokyo more worried as to what London would do, the East Indies being on the highroad to Australia.

Japan, in this case, was borrowing direct from our own Monroe Doctrine the principle that European possessions, while their ownership will not be questioned, cannot be bought and sold, captured or annexed, by other nations because this would inevitably mean trouble in the neighborhood. Our statement on the Dutch East Indies was based solely on the idea that our trade in vital raw materials might be interfered with. It therefore had not the justification behind the similar statement by Japan, since no Monroe Doctrine idea was involved. It was irritating to Japan precisely as a similar statement made by Japan about Greenland would have irritated this country.

These various declarations, it must be noted, were issued with no thought of acquisition of territory, but only of maintaining the *status quo*. Japan, at the time, had no more intention of annexing the islands than had the United States. It would, however, have been more serious for Japan than for us to have the islands fall into anarchy because of having no government, since the whole neighborhood would be affected. For us it was a trade question, and that appeared to depend on maintenance of Dutch sovereignty. For Japan it was a trade question also, but, even more important, it was a question of keeping the European war out of the Far East. There were thousands all over the world who hoped that the Queen of Holland would leave her first place of refuge and proceed with all speed to Batavia. Such unmistakable evidence of intention to maintain Dutch sovereignty would have quieted both fears and discussions, and would have settled the controversy immediately. As it was, fears grew on rumors and Japan was pushed toward her declaration of Asia for the Asiatics.

The European war gave Japan still another reason for the enunciation of her new doctrine, although this reason should have prohibited the use of the name "Monroe Doctrine." Japan was at war with China, and the question of shipment of supplies through alien territories to the government of Chiang Kai-shek had been very serious, and still was, in principle at least. The war in Europe seemed to give the Japanese a heaven-sent opportunity to isolate the government in Chungking from all foreign war materials except Russian. It seemed unlikely that Great Britain and France would risk a new conflict in the Far East merely to keep open a route over which war supplies had been passing to a Government of China for which everybody might have deep sympathy but which could not be of any help in the conflict. This case was not in the least parallel with that of the Dutch East Indies. It seemed rather that Japan was demanding rights in Burma and Indo-China the giving of which to other Asiatic nations it would fiercely resent.

In this Japan turned completely away from our conception of the Monroe Doctrine to a claim of overlordship utterly repugnant to the principles of that doctrine and dangerous to the future peace of the world. There would be plenty of effective protests from Great Britain if the United States began to tell the colonies and dominions what they could and could not do. So far as Indo-China was concerned, France, of course, gave in. It had no alternative. Great Britain, pushed to the wall and fighting for its life, agreed to close the Burma route for three months on condition that Japan opened peace negotiations with China. Our State Department's protest was justified neither by law nor by good sense.

II

Such things as fear over the future of Japanese trade in the Far East and the desire to hasten the end of the war with China were among the immediate causes of the Japanese declaration, aided, of course, by the thought that new principles could hardly be challenged by a world at war. But the essential, underlying reason was much more profound. It was the operation of economic factors, and particularly of one economic factor which is often ignored or brushed aside. Yet this principle explains a great deal that has happened and is happening now in various parts of the world and may well be an indication of how a new world order will develop after the war.

The principle may be stated as follows : a highly industralized territory always dominates economically neighboring territories which are technically less advanced. This domination is not so apparent in such neighbor territories as are most progressive. It may be fiercely resisted by more backward states or regions, but they must submit in the end. The domination does not need to be political ; it is far less likely to be resented and resisted when politics plays no part. It consists in setting the pace in economic matters, preferably through the play of natural forces rather than through the acts of individuals, no matter how laudable their motives. It is easier to get angry at an individual than at an economic trend.

From this point of view, look at the situation on the North American continent. It is no insult to Canada or Mexico or Central America to say that the United States is the most thoroughly industralized nation, the richest, the most advanced technologically. This is not owing to form of government, or merely to size ; not only because we have had a resourceful and progressive people, vast mineral resources, and far-reaching farm lands ; not because of our climate or our rivers and lakes ; rather a combination of all these has produced our railroads and our highways, our factories and our great organizations of trade—all the things which make the United States the supreme economic power of the continent. Only the degeneration of the American people, and over-satisfaction with themselves, a growing softness of fibre that would make them shrink away from fearless endeavor or from a fight for mastery, can destroy this pre-eminence.

Canada is least affected, because Canada also is highly progressive ; but equally is this true because Canada is bound by the closest ties to the mother nation overseas. This means that the great trade currents are strongly diverted into east-west channels, whereas the natural flow is across the border, north and south, at least so far as there are needs which could be fulfilled by one or the other nation. Mexico, on the other hand, less progressive, with practically no industrial development except what has come from the United States, is wholly within our orbit, little as it may like to admit the fact, much as it may chafe under the knowledge. There may be sporadic attempts to break away, but they can never be successful until Mexican development approximates our own. The same thing is true of Cuba and of all the territories of the Caribbean region.

Or look at Europe. When England was the greatest industrial nation its influence in Europe was paramount. But as British supremacy in manufacture and trade was more and more challenged, and as Britain more and more emphasized empire trade and subsidized such trade, the economic mastery of Europe passed to that great industrial region extending from the Ruhr through Belgium into Northern France. It did not, in this instance, coincide with nationality, which seemed to be a good thing for the peace of the world. But this hope was vain, because, as time went on, Germany, the most virile nation in the combination, began to struggle for political as well as economic leadership. There are many reasons for the war in Europe, but not the least of them, though certainly the least considered, it this German struggle to maintain and to extend always more and more widely its economic domination.

This brings us back to the Far East. Fifty years ago a declaration by Japan establishing a Monroe Doctrine for Asia would have been one of those futile diplomatic gestures which lead nowhere. To-day the situation is wholly different because Japan has become the great industrial nation of the East and is therefore the economically dominant power of the region. The so-called Monroe Doctrine proclaimed by Japan ought not to mean any curtailment of trade with the rest of the world. Except for the fact that different groups of nations are likely to co-ordinate their activities more and more, this new doctrine of the Far East should mean that trade will increase rather than diminish. With greater co-ordination of effort there should be higher general prosperity, and therefore an increased demand for foreign commodities. Japan would not worry about its own exports to other East Asiatic countries, because lower standards of labor, as compared to the West, and greater proximity would ensure its predominance in the sale of competitive goods. In noncompetitive goods it would not be interested.

It should thus be clear that a Japanese Monroe Doctrine, so far as it brought about closer co-operation among Asiatic nations and consequently an improvement in living conditions, would be of value abroad as well as locally. It would be dangerous, harmful locally as well as abroad, only if it meant cutting off trade with the West. This would only accentuate the national differences that lead to war.

As a " keep off the grass " sign, an Asiatic Monroe Doctrine would have to be backed by force, exactly as our own Monroe Doctrine is backed by force. Here Japan is already in the ascendancy. In a military sense it is recognized as supreme in the Orient even more clearly than in an economic sense. Nobody can say—at least no military man will say—just how wide an area can effectively be defended by a militarily dominant power. Perhaps as good a guide as any would be the radius over which a plane could fly with a load of bombs and return. This might be put at a thousand miles. But it cannot be the sole measure. Other questions must be answered. How strong are the economically dependent states as to their navies ? Would a combination of their navies be able to defeat the navy of the sponsor state ? If they have strong armies could those armies, alone or in combination, be effectively used against the state controlling the regional economic group ?

Regarding all these factors Japan is in a position somewhat similar to ours—stronger than ours, if anything, because in Japan invasion would be practically impossible. The Japanese can easily prevent any communication with the Asiatic mainland, and invasion from any other direction would be unthinkable. On the other hand, we have Canada to the north and Mexico to the south, and, although we certainly do not expect to be invaded by either, we are here discussing only geographical factors. Japan could be bombed from the air, but so could we, if any neighboring territory were in unfriendly hands. It is thus clear that Japan, unless attacked by Russia, is in a position to enforce compliance with the hands-off doctrine in East Asia just as surely as we can on the North American continent and in the Caribbean.

But under any interpretation of the Monroe Doctrine this military power should be used only to repel attempts to seize territory. If Japanese military power can be used similarly in the Far East, protecting the different states from outside aggression and therefore helping to keep the peace, its influence will be beneficent. If, on the other hand, it becomes an aggressive force within the region, its influence will be wholly bad. Neither must it be used to disrupt international trade, but rather to protect it. It must not threaten the political integrity of the weaker nations, but instead act as a guaranty to their sovereignty—a guaranty never thrust into the foreground and therefore irritating, but recognized as a force which will prevent outside influence from interfering with normal internal development.

III

" This all sounds very beautiful," people will say, " but how about China ? After what Japan has done in China it cannot ever be trusted. Is not all this talk about the Japanese military as a possible stabilizing influence pure nonsense ? And why should it be Japan anyhow that proclaims an Asiatic Monroe Doctrine ? "

The questions are well taken and cannot be precisely answered because, except for the last question, they are in the realm of theory. If there is to be a Monroe Doctrine for East Asia, the only nation which can effectively sponsor it is Japan, since, as we have seen, Japan is unquestionably the dominant economic and military power of the Orient. For any other nation of the Far East to proclaim such a doctrine would be futile. But then, can Japan be trusted ?

After all, since Japan emerged from its isolation less than a century ago its promises have been at least as sincere as those of western nations—and that, alas, remains true even to-day, when Japan has been ripping through treaty provisions whenever its pledged word seemed to work to its own disadvantage. Unfortunately, it is not being cynical to say that nowhere, any longer, is there much respect for a pledge. We Americans like to think ourselves better than most, but a list of our broken promises, including the recent shameless disregard of one of the principles of the Hague Treaty, would be surprising and unpleasant reading for most honorable Americans. And it is fair to say that there are thousands of honorable Japanese just as there are thousands of honorable Americans who believe that a pledge is sacred and are sorry and ashamed for the broken promises of their nation.

The plain fact is that there has got to be a spiritual regeneration, not only in Japan and Germany and Italy, but in Great Britain and France and the United States. Britain's Monroe Doctrine covers the Empire, but few of the stones of which the Empire is built are bloodless. The Spaniards in the past and the French in more recent years pushed forward their empires with contemptuous disregard of the rights of others. Whatever the apologists may say, our own Mexican War was a war of conquest. It is no answer to claim that the world is better off for those conquests—that they all advanced civilization. The same claim will undoubtedly be made a hundred years from now by Germany, Italy and Japan, if they are still independent and powerful nations: and it stands to reason that we cannot, from our own narrow outlook of the present, refute this claim.

The American Monroe Doctrine was no self-denying ordinance. We did not pledge ourselves never to expand. We did seize the south-west United States, and at other times we should probably have taken more territory if it had seemed to our advantage. We therefore have no right to insist, much as we should like to, that unless the Japanese Monroe Doctrine contains a self-denying clause it is wholly pernicious. The Japanese move into Manchuria ten years ago, induced by pressure of population and the need for security in certain raw materials,—which needs the Japanese felt overrode even treaty provisions and national promises,—had probably more justification than our own move into California. In both cases subsequent developments have proved the conquests wise for the territories in question and for the world. The Manchurian invasion seems to us worse only because it is so recent that the moral obloquy of it blinds us to the resultant benefits.

On the other hand, certain facts due to modern conditions have made conquests and the enslavement of peoples far more dangerous and less lucrative than in former years. Rapidity of communication has greatly increased the power of world public opinion. When the Japanese bomb open cities in China, the cabled news reaches America within a few hours. Funds for China relief flow more freely and Americans cry for an embargo on Japan. In the old days we should have heard nothing until the war was over. When it was learned recently that the Germans were seizing cattle and foodstuffs on which the peoples of France and Belgium depend to save them from starvation next winter the moral indignation of America rose to the boiling point. Not many years ago we should have heard nothing until starvation had actually set in. Acts of terrorism have thus become more dangerous to the nations indulging in them, because instantaneous news mobilizes world indignation.

This same rapidity of communication, moreover, has made international trade as simple and as lucrative as domestic trade—always, of course, when it is not hamstrung by embargoes and prohibitions and exchange difficulties. It is therefore generally true that a dominant economic nation or region will find itself more prosperous, will make more money and exert greater influence, through peaceful economic co-operation than through conquest. Japan is just as capable of learning these facts as is any other nation.

It would thus seem that self-interest, once the theory of an Asiatic bloc was established, would induce Japan to carry on by means of co-operation rather than through attempted conquest. The China adventure has certainly not been of such a nature as to induce Japan to go blithely into similar attempts at conquest. In fact, except for a few fire-eating militarists, what Japan wants above all else is peace. It is always acutely conscious of the Russian bear peering hungrily across a narrow sea, sending its emissaries to spread the gospel of communism. Japan wants to be free to deal with that bear when the time comes. The wise men of the nation are afraid also of a victorious Germany—know full well that any irritation caused in Eastern Asia because of British and French possessions would be as nothing compared to the menace of a German Hongkong or a German Indo-China or a German Singapore. Everybody knows there is a campaign of excited Japanese militarists against Britain, but this seems to be temporary, the immediate result of events in Europe. Japan feels its great dependence on the United States, and above all does not want to quarrel with this country. If this idea of an Asiatic Monroe Doctrine sponsored by Japan is accepted by the rest of the world, the chances of a peaceful Orient after the Chinese war is settled will be far greater than if Japan feels itself thwarted in its just as well as its unjust ambitions.

IV

Whether we like it or not, the stake of the United States in the Orient is very large. This is not the place to discuss the Philippines, and momentarily the Philippines must be lumped with the possessions of the other western nations in the Far East. But, omitting the Philippines altogether, our stake is still large—sentimentally, in our missions and educational work; materially, in our trade. American missions are far more numerous in China than elsewhere: on the other hand, our trade is greatest with Japan. It is also very important with the Dutch East Indies and Malaya. Japan buys more annually from us; we buy more from the Dutch and British colonies than they buy from us. And it must be remembered that our purchases are largely of essentials, like tin and rubber, which are not elsewhere produced in sufficient quantities. We could get on without buying from Japan, but to stop selling to Japan would be disastrous, especially to the cotton growers of the South.

We must not forget, moreover, that we can continue our essential purchases from the Dutch East Indies and Malaya indefinitely only if we remain on good terms with Japan, the dominant economic and military power of the Far East. This is a simple fact that it is useless to try to hide. It has become a fact partly because the war in Europe has loosed the bonds binding the colonies to their absentee landlords and has decreased if not entirely destroyed the power of those landlords to defend their possessions.

It would seem, then, that the part of wisdom for the United States would be to welcome this Japanese Monroe Doctrine, not because we particularly like to accept it without greater clarification, but because it has in it seeds from which may grow crops which will be useful to us as well as to the Far Eastern group. If we should be the first to accept it, we should quickly regain our position as the best friend of Japan. We should, of course, be acting primarily to help ourselves, and this the Japanese would understand and applaud. But we should also be helping Japan to remove the menace of Germany from the Far East. Nobody as yet knows what demands Germany may make on the colonial possessions, in Asia, of the Allies or of the Netherlands when the war is over. There is always the possibility of annexation, if Germany is wholly victorious. In the long run this would be as disastrous to Japan as similar changes in the Caribbean would be to us. In fact it may be this very point which accounts for Japan's use of the name "Monroe Doctrine." In the Western Hemisphere the Doctrine prohibits the transfer of territory from one European power to another. Might not a Japanese Monroe Doctrine maintain the same prohibition in Asia? In Japan, if our Government only realizes the fact, this is of vital importance. There would be no such thing as Asia for the Asiatics if Germany succeeds to the colonial possessions of England, France, and the Netherlands.

Nor would there be for the United States free access to the markets of the Orient. Germany in control of the Dutch East Indies and Malaya would insist upon practical monopoly of the products of these regions, would use their strategic raw materials for political purposes. The Japanese must know this as well as we do. They can look back on the German management of the ports held in China before the last war and can thereby gain some idea of what would happen to-day. If Japan, too deeply impressed with German power, should be tricked into an alliance to the extent of permitting Germany once more to get a foothold in the Far East, the honeymoon could last only a very short time. Such promises as Germany might make in order to gain the confidence and gratitude of the Japanese would go the way of other German promises when Japanese friendship was no longer necessary. The Monroe Doctrine of Asia would prove to be Asia for the Germans—not for the Asiatics.

The situation is intolerably confused. Our only endeavor must be to discover what is best for the United States, and then to act. Certainly we cannot prevent Japan from declaring a Monroe Doctrine for Asia, and we should therefore be unintelligent to oppose it. If we have the courage to applaud, Japan might well be willing to draw from our own past experience. Fortunately, we have in Tokyo as Ambassador an extraordinarily able man who is always completely American and has at the same time the full confidence of the Japanese, who know they can trust him to tell the truth and to be always courteous in doing it. With appropriate authority

(Continued on page 17)

Expatriates in Asia

By C. J. LAVAL

The general exodus from China through recent months of Americans and Britons in consequence of advice given officially by the American and British Governments has been impressive, but this wholesale departure thus far has been confined to those with places and positions to go to, and to others so circumstanced that a return to the Homeland involved no special hardship. Many, apprehensive of an uncertain future, have remained in China. These, who have stayed behind, number some odd thousands. Some few of them, well able to accept the advice of their Government, for one cause or another, have seen fit to disregard the official counsel and " to wait and see what is going to happen." A much larger group have remained to try to avert greater or lesser business losses that their departure would impose. Perhaps the largest group of the Americans still in China—that are more or less concentrated at Shanghai and in the large centers near the Coast—have had scant choice in the matter. These have preferred to cling to even meagre livelihoods in China, that still are livelihoods, than to go home " to start all over again " in a native but unfamiliar environment full of uncertainties. Not a few of these, lacking means to pay for transportation costs that at lowest run to a thousand or more Chinese dollars per individual have had no choice but to stay on in China.

There's no telling at this time how this Far Eastern situation is going to work out. These American expatriates in China and other Far Eastern lands, and other aliens in the same plight, very definitely are in a spot. In the best of circumstances, if they remain in the Far East, they must through coming months experience a measure of personal insecurity under abnormal and restricted living conditions, and they must find means in a disorganized marketplace to pay living costs many times higher than levels in normal times. At the other end of the picture probably the worst fate that can overtake these self-exiled folk from overseas will be in an internment camp fashioned after the latest Teutonic pattern in an oriental setting with Eurasian trappings.

Main Factors are in Europe

These are the extremes of what the future appears to hold for the ordinary white man in China, but between these extremes lie many possibilities that are too shadowy to be defined. Without doubt the destiny of the Far East and of all those who live there will be determined largely by the course of the war in Europe. The effects of every Nazi onslaught against the defenses of the United Kingdom and of every armed engagement in North Africa and in Albania swiftly are reflected in Far Eastern happenings and the Far Eastern reaction to defeats or victories on these battlegrounds on the other side of the world is proportioned to the magnitude of the gains or losses of the adversaries in Europe.

It is unlikely that any major changes will take place in the general Far Eastern situation unless and until the European conflict enters into some decisive phase. Barring the occurrence of some unplanned, untoward incident, a contingency against which all interested factions appear to be guarding, it is unlikely that any major developments will take place in the immediate future in the Far East. What changes are brought about will come gradually under increasing pressure of events.

Despite all the belligerent talk on both sides of the Pacific, it is wholly unlikely that any formal warfare involving actual fighting will take place in the Pacific. It has been the opinion of recognized experts in the past that a war between Japan and the United States, which would have to be fought in the western Pacific, geographically would be an impossibility. Although antagonism and mutual resentment between Japan and the United States have made their relations more tense than ever before, the obstacles that stand in the way of a war between these powers have been increased rather than lessened in consequence of the war in Europe. Necessities which, it is recognized, may swiftly arise in the Atlantic have created special problems for the American high naval command. The hazards of sending American warcraft in force into the far western Pacific are greater to-day than ever before precisely because should the American fleet be shifted from Hawaii and based for example, at Singapore, the facilities for quickly thrusting the Fleet into service in the Atlantic would be greatly impaired if, in fact, they would not be partly destroyed.

A study of the island dotted waters of the western Pacific, to the lay mind at least, gives rise to a disbelief that American naval commanders would sanction any adventure into this part of the world so long as the safety and security of the British Fleet in the Mediterranean and in the Atlantic, and the French Fleet as well, were doubly and trebly assured. Consideration of the presence in Siberia of a huge Russian fighting machine in the form of the Russian Far Eastern army and an undoubtedly formidable Russian naval strength at Vladivostok makes it appear likely that the American Nation could win precisely nothing even if the American Fleet attacked in the western Pacific and sank the whole Japanese Navy. With the memory in mind of recent events in Poland, in Finland and in the lesser Baltic states, will any optimistic observer contend that Comrade Stalin would let slip from his grasp the prize of China and all East Asia that an American naval victory over Japan would place in his palm ?

Unknown Quantities

Since the termination of the Naval Treaty five years ago an immense amount of undisclosed naval armament building has been taking place and the actual strength to-day of the Japanese Navy is an unknown quantity. According to what appear to be the best guesses of the experts the present-day American Japanese naval ratio stands about five to four and due to geographical considerations this ratio would be brought to approximate parity in the event of a war fought in Japanese waters or in the western Pacific. Whatever value speculation about naval ratio may have, it is quite certain that the United States possesses no overwhelming superiority. Victory over the Japanese forces could not be won cheaply, or in a short time, or without considerable losses. The costs of such a victory cannot be estimated. The probable or possible gains to be won are illusory. These are the considerations that make any formal war in the Pacific unlikely. The drift of events into a state of war between Japan and the United States, however, is a more likely possibility.

Although no formal war may take place in the Pacific, there exists ample likelihood that a state of war in the Pacific may be brought about, and for those Americans remaining in China, and for other Occidental aliens there, this would measue into as great a misfortune as would follow actual fighting between conflicting fleets. Such a state of affairs might grow out of a long-range Anglo-American blockade aimed against Japan involving complete withdrawal of Anglo-American seaborne commerce from the western Pacific, the closing of Anglo-American ports to Japanese shipping, and the imposition by the Washington Government of a complete embargo on Japanese-American trade. These things promptly would be construed as acts of war and would bring about a state of war, even though no actual fighting should take place. In any such long-distance blockade, not only Japan, but the Asiatic coast and all of China automatically would be cut off from contact with the Western world. As a state of war then would have been brought about, primarily between Japan and the United States, but involving also Great Britain, all Americans and Britons in East Asia would find themselves living in enemy territory and subject therefore to restraints and detention.

One Hopeful Possibility

The majority of the Occidentals remaining in China, particularly Americans and Britons, are concentrated at Shanghai and for these a single hopeful possibility has arisen in discussions and recent newspaper comment. This lies in a revival of a suggestion that has been made on a number of occasions in the past that the whole Shanghai region be converted into a neutral zone by international agreement and remain undisturbed by any external conflicts. Failing some development of this kind that would give them a certain immunity from personal danger in the event of war in the Pacific, the Britons and Americans trapped in China by such a war could only hope to seek refuge in the inhospitable and impoverished interior of the country far from tidewater—if they could get there.

It was while warfare was in progress in Shanghai following the Manchurian incident nine years ago when the original proposals to make the port of Shanghai the center of a neutral zone were heard. It is said the idea originated in Chinese financial circles and those who sponsored it sought and obtained a certain amount of American support. The purpose was to make Shanghai a " free " city, a small independent city-state, with its own government and constabulary, free from every form of military dominance or activity.

If such a thing could be brought to pass, converting Shanghai with the Yangtze estuary and surrounding territory into a region of safety for all races and peoples, then it might confidently be expected that within a decade Shanghai would become the world's largest city and the world's leading port, for the bulk of the wealth of all the Far East, and vast riches from overseas, would drain into and be concentrated in this zone of security. It is reasonable to surmise that such an eventuality would be acceptable to and be supported by the Japanese Government, for the port would be distinctly within Japan's commercial sphere and Japan would enjoy the special advantages of geographical propinquity with this great new marketplace. The greatest advantages would be derived by the people of China and its Government because Shanghai would assuredly become one of the world's greatest and most prosperous industrial centers.

Through the past century Shanghai has been unique among the cities of the world functioning clumsily and wastefully under three separate governments, one French, ruling the French Concession, another Chinese, dominating the territory immediately adjacent to the foreign settlements, and a third, the International Settlement, under the rule of a Court of Consuls representing the consular representatives of nearly twenty different foreign powers. The shipping of the port and Shanghai's financial and commercial activities largely have been concentrated in the International Settlement and this area inhabited by a score or more racial groups exists by virtue of a form of charter granted by the Chinese Government of a century ago called the Land Regulations. It has long been accepted that these Land Regulations, framed originally to fit conditions that existed a century ago, are obsolete, and not only are they inapplicable to conditions of the present day, but they constitute an obstacle which has gravely hampered the growth and progress of the port.

The Position of the Chinese

In the past every effort has been made to relax the crippling restrictions of the Land Regulations or to modify them to conform with the great changes that have taken place in Shanghai. Consistently these efforts have met with the unyielding opposition of the Chinese Government that happened to be in power when the changes were undertaken. This Chinese resistance to any change has been based almost wholly on the element of " face," that is to say on the evanescent and sadly abused sovereign rights of the Chinese. The rule that Chinese officialdom appears to have been governed by in the past is that any changes, however beneficial they may be for China and the Chinese people, must be resisted and forbidden if they also are of any benefit to the foreigner in China.

Whether the immense advantages to be derived for China and its people by making a great world center of Shanghai will be sufficient to outweigh the inherent Chinese opposition to such change is doubtful. It is to be observed, however, that the Chinese leaders in finance and commerce are eminently practical people. Along with many Chinese officials they own the bulk of Shanghai and its surrounding territory. Certainly they should not be expected to be averse to a development which overnight would multiply many times the values of their extensive holdings. Such considerations might influence the most powerful Chinese interests to devise some formula with which the transformation could be made possible without infringing the sanctity of national sovereign rights. The thing possibly might be achieved with some form of leasehold to a municipal corporation granted by a Chinese Government, in perpetuity, or through distant years in the future. The question of revenues the Chinese Government might derive through such a course may also be seen as an important factor.

International complexities that stood in the way of the creation of a " free " city in the Shanghai region have undergone modification in consequence of present-day warfare and due to other causes. When the idea was first broached in 1932 a major obstacle envisaged was the anticipated objection of the Government of France. It was thought that the Paris Government would be reluctant to surrender the French Concession for realization of the project and it was deemed that this would be necessary, as the French Concession is a component part of the city of Shanghai. It is possible that effects wrought by the war in Europe may have changed the French viewpoint. In view of the changed conditions it can be contended that existing French interests in Shanghai perhaps could be most surely safeguarded by surrender of the Concession and the merging of this former French territory into the new conception. With equal force the same considerations may be expected to influence British and American opinion regarding the Shanghai project.

It perhaps will be accepted without dissent from any quarter —whether or not a war is fought in the Pacific—that the creation at Shanghai of a region of security, brought about by the mutual consent of all powers and interests concerned, would be a desirable eventuality. This should help all and harm none. This territory with a population that numbers probably five to ten millions, and possessing what in normal times is the world's fifth seaport, now lies under control of the Japanese armed forces. This control, by international convention, which would define precisely all the conditions under which the new independent City-State would be brought into being, would be removed. The vexed problem of " third power rights " in a war-torn land, which has caused much international friction, in large measure would be solved, having the immediate result of loosing a flood-tide of commercial prosperity in this part of East Asia.

If these things might be brought about China would be the chief beneficiary. If any questions having to do with China's sovreign rights should arise, it might be pointed out that, if realization of the project involved any impairment of national interests, the new dispensation would carry with it full recompense, a factor that has been lacking through the long decades in which alien impositions of one kind or another have been suffered in the land.

This whole idea may seem to be illusory and fantastic; it remains, however, a practical possibility. Only through some development of the sort can the vast interests in the Shanghai region and perhaps the lives of many of its inhabitants be safeguarded in the event of conflict in the Pacific. It is a way of making many blades of grass grow where now there are none.

Hongkong Port Problem

Sir David Owen, lately General Manager of the Port of London Authority, has accepted an invitation from the Government of Hongkong, through the Colonial Office, to visit the Colony for the purpose of advising upon the future administration of the Port and he was expected to leave London during September.

The terms of reference which he has been given are as follows: " To investigate the whole question of harbor facilities, organization and administration at Hongkong, having regard to the existing system of pier leases which are due to expire in about ten years' time, and, in the light of physical, economic and political conditions, to make recommendations for measures by which the Port could in future be developed and controlled to the best advantage of all persons and interests dependent on its services."

It is understood that the port facilities at Hongkong are now provided by private enterprise, but the ground, on which the piers, etc., have been constructed, is the property of the Government, who originally granted leases for long terms to private companies. These leases, as stated above, are due to expire in about ten years, and the Government of the Colony have intimated that they are not likely to renew them. The question, therefore, arises as to how the port should be controlled and administered in the future, and the whole subject of development is suspended until the matter of port control is settled.—*The Dock and Harbor Authority*

Burma's War Effort

By F. BURTON LEACH, C.I.E.

(The Asiatic Review)

If little has been heard hitherto of Burma's war effort, it is not because that effort is unimportant or negligible. India lies very close, and her mighty effort and immense resources have somewhat obscured her smaller neighbor's contribution from limited resources. Few of Burma's peoples have martial traditions, and the bulk of them are cheerful, peace-loving agriculturists. She has few industries or prosperous industrialists. Nor has Burma the counterpart of the many great princes and rulers of India, who have thrown all their resources into the struggle.

Yet Burma in her own way has much to offer towards the common cause, including certain almost unique natural resources, existing and potential. Whatever she has, Burma is willing and anxious to give, and the mobilization of those resources is proceeding steadily. This will undoubtedly gather momentum and direction as the result of the economic conference in Delhi, at which Burma will be represented.

Of the sympathy of the peoples of Burma with the Allied cause, and their detestation of Hitlerism and all it stands for, there has been ample proof. Even before the actual outbreak of war the Burma Senate recorded its loyalty to the King and approval of British policy. In the very early days the Chiefs of the Shan States and the Karenni States placed all their resources at His Majesty's disposal, and all communities demonstrated their loyalty in various ways. There was a remarkable demonstration of this unanimity on the day of national prayer for the Allied cause, the congregations at the various places of worship including Christians, Buddhists—Burmans, Karens and Chinese—Hindus, Muslims, Sikhs, Jews and Armenians. The attitude of Burma towards aggressive nations was stated afresh in the resolution unanimously passed by the House of Representatives in February of last year, and the Premier made an emphatic statement in August that

"It is Burma's bounden duty to place all resources of men, money, and material at the disposal of Britain for a speedy and successful termination of the war."

Burma Squadron of the R.A.F.

Loyal sentiments found further expression in spontaneous contributions towards the cost of the war. The Shan Chiefs, for example, offered £40,000 through their Federal Council, and this total was raised to £60,000 through individual contributions from the States. In addition, the Sawbwa of Tawnpeng sent a direct contribution of £10,000 to the Lord Mayor's Fund in London for the Red Cross. An interesting contribution was that of Pun Za Maug, Chief of the Kamhu Tribal Area in the Chin Hills, who gave Rs. 500 (£37), as his father, How Chin Koop, did in the last war. This represents a very substantial donation from a Chief of the Chin Hills.

From this public-spirited desire to help arose the inception last March of the Burma War Fund, and donations have since been received from all classes of society. More than £125,000 has already been contributed to this Fund, and donations for general purposes, such as those mentioned above, bring Burma's present contribution to over £200,000.

It was felt that the first-fruits of the Fund could most suitably be used for the formation of a Burma Squadron of the Royal Air Force, and this offer has been gratefully accepted by the Air Council. It is fitting, too, that the squadron which is to bear Burma's name will have as its crest the national emblem of Burma—"A peacock in its pride."

The Defense of Burma

Burma has all through her history been remarkably free from external aggression. Her frontiers march for some two thousand miles with China and Siam, and for a short distance with French Indo-China, but they lie in difficult country, and none of these neighbors are aggressive.

Two recent events have, however, altered the position—the development of aerial warfare and the Japanese invasion of China. Yunnan, formerly the most remote province, has become the center of China's resistance, and her only contact with the free world is by the new Burma-China road. The closure of this road is demanded by Japan, whose air force is now within striking distance of Burma, which has therefore acquired a new strategic importance.

Until the last war the garrison of Burma, which had in the last generation been considerably reduced, consisted mainly of British and Indian troops, the only entirely indigenous unit being a company of Sappers and Miners, in addition to which a few companies of hill-tribes, Kachins and Chins, and of Karens, were included in the Burma Military Police, of which the Upper Burma battalions were responsible for watch and ward on the frontiers of Burma.

In the very early days after the First Burmese War local forces were raised both in Arakan and Tenasserim, but they did not last long, and no further efforts seem to have been made to recruit Burmese after the second and third wars, except for the Sappers and Miners. There was never a strong military tradition, and what little there had been had almost died out when the 70th Burma Rifles (which later became the 20th) were formed in 1916. All the main races of the country—Burmese, Karens, Shans, Kachins and Chins—were recruited. The first battalion went to Palestine, and, though a very new formation with no old soldiers to give it a stiffening, received excellent reports.

The regiment continued to exist, and for ten years or so after the war one battalion was always stationed at Taiping in the Malay States. About 1927, to the great chagrin of the Burmese people, recruitment was limited to Kachins, Chins, and Karens, and about the same time the Burma Company of Sappers and Miners was disbanded for reasons of economy, and for ten years before separation not a single representative of the Burmese people served in the ranks of the regular army.

One of the first demands after separation from India was to remove what was considered a slur on the Burmese people. The Burma Sappers and Miners were at once reconstituted. Technical units of this kind suit the Burmese temperament better than infantry of the line, and in the last war the Sappers and Miners did excellent work in Mesopotamia and on the North-West Frontier, never sick or sorry, cheery and hard-working, and exceptional in their ability to stand extremes of heat and cold.

Of actual fighting qualities the Burmese showed no lack in the Burma Rifles, but the routine work and discipline of peace-time soldiering was less to their taste. They suffered from hasty and injudicious methods of recruiting in 1917 and 1918 and earned a reputation which was not always deserved. They are now being recruited again for the Burma Rifles, the four regular battalions of which have been increased in strength, and a fifth battalion is in process of formation.

Those who, like the present writer, served with them in the last war know that the recruits included some first-rate material, and, with care in recruitment and avoidance of undue haste, there is no reason why the Burmese should not make excellent soldiers and be able in due course to undertake the defense of their own country.

At any sort of technical work they rapidly become adepts, and other technical units recently raised are the Burma Army Signals, an Animal Transport Company and ancillary units—ordnance, medical, and veterinary.

Three years ago responsibility for her own defense was imposed on the Government of Burma as the result of separation from India. Much had been done to organize and equip the Burma Defense Force before war broke out, and much has since been achieved in providing for new and urgent requirements. In assessing the value of Burma's contribution in the war and comparing it with those of other territories in the Empire, it must be remembered that the entire cost of her defenses is met from her own resources, and that this burden, always heavy for an agricultural country to shoulder, grows rapidly heavier in time of war.

The Burma Defense Council came into being shortly after war was declared, to " simplify and expedite consideration of and decision on problems created by the war, both in the interests of the people of Burma and to ensure the successful prosecution of the war." Subsequent expansion of the Council provided for a majority of Burman representatives, while recently a representative Burman was appointed to serve as Counsellor to the Governor in the all-important sphere of defense.

Auxiliary and Irregular Forces

Non-regular units exist in Burma side by sfde with regular units, and their numbers continue to grow. The Burma Auxiliary Force, open to both Burmans and Europeans, includes four infantry battalions and a brigade of artillery, which includes, among other duties, that of manning the coastal batteries and anti-aircraft defenses. The Burma Territorial Force, recruited entirely from the indigenous races of Burma, now comprises three battalions, of which the Shan States Battalion has recently been raised at the expense of the Shan States as a further contribution towards the prosecution of the war.

The Burma Royal Naval Volunteer Reserve Force has also been constituted for local naval defense, and an auxiliary air squadron is in process of formation, preliminary training having already started. Finally, there are six irregular battalions of the Burma Frontier Force, together with a training battalion, and a seventh battalion is now being raised.

This Force, under its old name of the Upper Burma Military Police, sent many thousands of fighting men to the last war. Raised after the annexation of Upper Burma, it has for over fifty years been responsible for watch and ward on the Frontiers of Burma. It prides itself, with good reason, on its great mobility and on the power of independent command of its Indian and Burman officers, who spend most of their service in small outposts with little supervision from British officers, who are very few in number.

To the Burma Defense Force as a whole 4,000 men have already been recruited, and 5,000 more will be called up shortly.

Since separation from India the Army in Burma Reserve of Officers, corresponding to the A.I.R.O., to which many Europeans living in Burma used to belong, has been constituted, and King's commissions are granted to Europeans and Burmans who, after attending training courses, are posted for service with Burman units. Compulsory service is being instituted for all European British subjects.

Natural Resources

Burma has an area of 250,000 square miles and 15,000,000 inhabitants. Her export trade approximates to £80,000,000 annually, rice exports alone totalling over 3,000,000 tons. After rice her best-known export is timber, mainly teak, of the best quality of which her huge forests contain a virtual monopoly. Burma is mainly an agricultural country, and after rice her main crops are cotton, oil-seeds, millet, maize, and groundnuts. She possesses, however, rich stores of minerals, of which oil, lead, zinc, silver, tin, and wolfram are the most important. In normal times over 200,000,000 gallons of kerosene and petrol, valued at £13,000,000, are exported annually, mainly to India, and the exports of metals and ores vary between 150,000 and 200,000 tons a year.

It has been remarked that Burma is a country with as yet little important manufacturing capacity. Her prosperity and her strength lie in her output of natural products. Burma's war effort, then, apart from providing for the effective defense of her land and sea frontiers, must largely be directed to an increased output of such of her products as are valuable for the conduct of the war, a characteristic which, in greater or lesser degree, applies to practically all of them. The task of increasing her output of various groups of commodities to meet the requirements of the Allies and of her partners in the British Commonwealth is one of the most important functions of the Defense Council, and increased responsibilities in this respect will arise from the forthcoming Delhi Conference.

Already the output of tin and wolfram has been increased, and India is to have more lead for her expanded war-time industries. Wolfram is essential in the manufacture of high-grade steel. Burma is one of the world's main producers, and her supplies are now practically reserved for Empire needs. There has been a large increase in the export of teak, essential for new naval construction. Burma produces large quantities of aviation spirit for R.A.F. units operating east of Suez, and is prepared for much greater calls upon her. There has been a greatly increased demand throughout the Empire for industrial precious stones, particularly rubies, which are essential for chronometers, the finest electrical instruments, and precision work generally. Burma is one of the largest producers of such stones in the world, and is arranging to meet all demands. Rice production must be maintained, for the rice-eating peoples of India and Ceylon are largely dependent upon Burma.

It will be seen, then, that, though Burma's war effort has been partly obscured by the wider and weightier activities of India, she is making her own particular contribution to the common cause. She is giving money according to her means, has put her defences in good order, and is mobilizing and training adequate reserves, and is developing her natural resources to the fullest extent demanded of her. Burma is a land of peace, beauty, and happy laughter, but she has turned resolutely to the grim pursuits of war and is tackling them with fortitude and determination.

A Monroe Doctrine for Japan

(Continued from page 13)

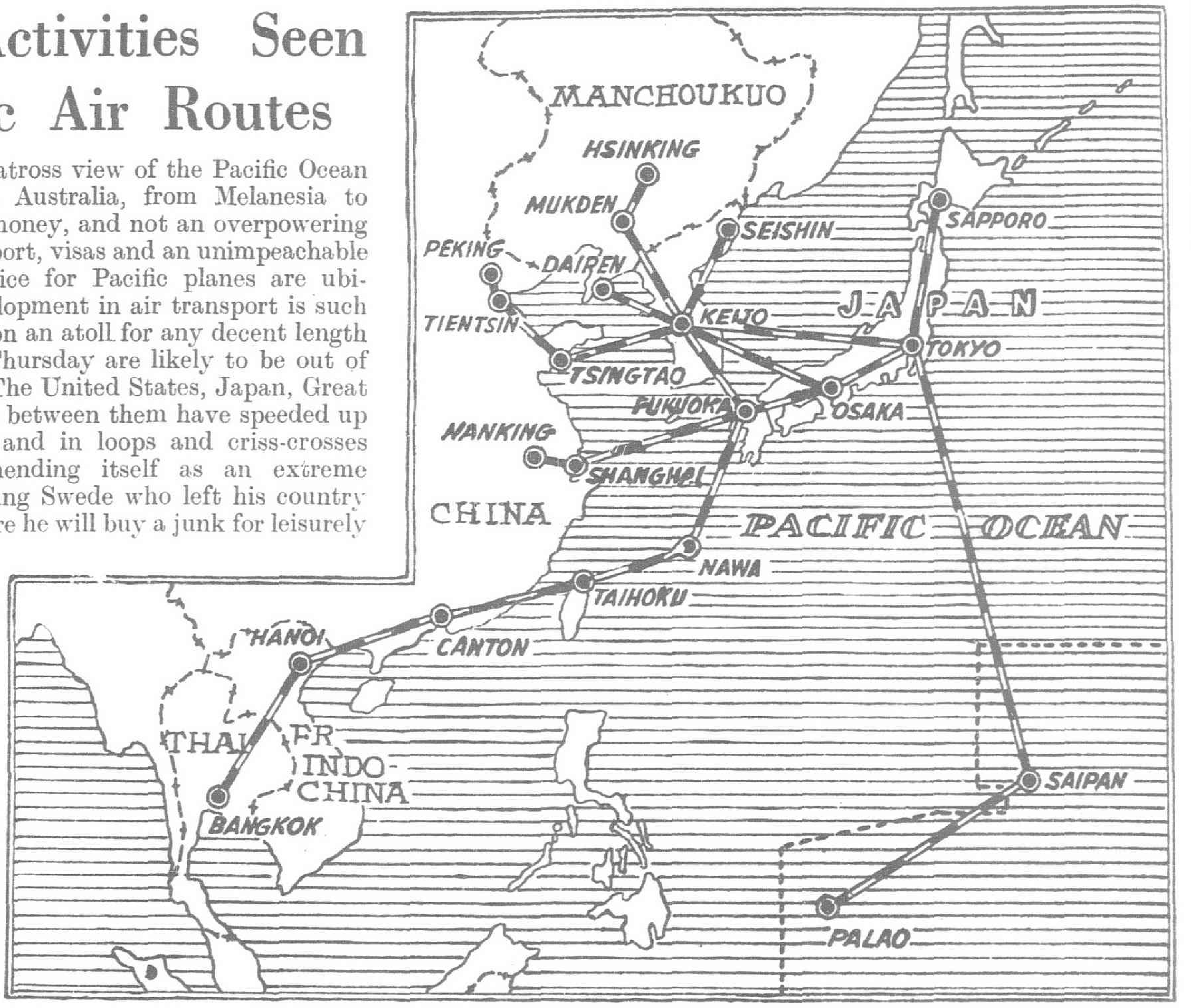
from Washington, Mr. Grew could co-operate with the Japanese to make the new Monroe Doctrine a success, useful to Japan and the group of nations which make up East Asia—in fact, to the world. For the sake of Japan, the sponsor, as well as for other nations, the Doctrine must not be permitted so to develop as to strangle trade by means of quotas and embargoes. There might in time be an East Asiatic customs union, but this could grow out of the Doctrine only as the result of real co-operation ; it would not permanently hurt the rest of the world any more than the customs union between the states of the United States has hurt the world. Also, as the result of working together, there might gradually develop some unified plan of buying and selling, a development which will probably be necessary everywhere to meet the totalitarian purchasing and selling units.

Finally, it is said that Japan is rapidly becoming a totalitarian state itself. This may be brought about by the formation of a single political party. We Americans believe such a system dangerous to peace and a certain menace to steady national progress. But we must also remember that Prince Konoye, slated to be the head of the new single party, is one of the most honorable men in Japanese public life. He is no Hitler or Stalin, with delusions of grandeur, but a man working unselfishly for the good of his nation. Prince Konoye is not a man to cling to power, but rather one with a clear vision who would be the first to turn the nation back to a parliamentary system. This he undoubtedly would do if the Japanese Monroe Doctrine helps to bring peace, prosperity, and stability.

All these things are in the future. We cannot decide them, but we can influence their development if we are wise enough to be objective ; if we are sufficiently patriotic to consider only the ultimate good of the United States ; if we submerge sentimentality in common sense. The American Monroe Doctrine warns the rest of the world against interference with the political life of the two continents ; it connotes similar restraint on our part toward Europe and Asia. An Asiatic Monroe Doctrine enforcing the same principles, emphasizing co-operation as against aggression, could only benefit, not injure, the United States.

International Activities Seen in New Pacific Air Routes

All a man needs for an albatross view of the Pacific Ocean from North America to Australia, from Melanesia to Japan and China, is the money, and not an overpowering load of that, besides passport, visas and an unimpeachable character, useful with airport police for Pacific planes are ubiquitous in 1940. The rate of development in air transport is such that the chances of remaining lost on an atoll for any decent length of time with Man Friday or Girl Thursday are likely to be out of the betting in a couple of years. The United States, Japan, Great Britain and the Netherlands Indies between them have speeded up airplane travel along main lines, and in loops and criss-crosses between island groups. Recommending itself as an extreme alternative is the method of a young Swede who left his country last month, bound for Batavia, where he will buy a junk for leisurely travel. But as time goes on such voyages in small boats are likely to draw suspicion, or jealousy, from officialdom.



Airways of the Western Pacific showing connections with Japan and the East Asiatic Coast

For speed and convenience, however, the air communications are in keeping with efficiency dictated by war. As air combat has forced improvements in craft and technique, and made available large numbers of experienced pilots outside the regular combatant squadrons, the South Pacific has received benefits. The Clipper service connecting San Francisco with Hongkong via Honolulu, various islands and the Philippines, has shown constant improvement. The new loop service branches off from Honolulu, flies south with two stops to New Zealand. The Clippers then continue on to Sydney and Melbourne in Australia, and take off for the north from Port Darwin. Sourabaya and Singapore are taken on the way to Manila. It will readily be seen how the passenger from America or Malaya can plan out easy connections to any part of the South Pacific. For in addition to the trunk lines there are various inter-connecting air lines, not necessarily related to the Clippers but feeding them, and taking passengers from them.

At Hongkong easy access is had with Canton where the Japanese air lines connect. These planes, besides flying south to Indo-China and Thailand, afford regular connection with Shanghai, Manchoukuo and Japan, with a great system of inland air lines linking up. The Japanese Air Transport system also runs regularly to Formosa and some of the mandated islands. Because of the official demand for accommodation on the planes operating between Japan, Manchoukuo and China, seats are not always available when wanted. But the lines laid down, or rather outlined in the skies, emphasize that a great deal of preparatory work is going on which more peaceful conditions will permit tourists and the civilian public generally to enjoy to a greater degree.

The airplane manufacturers, the thousands of pilots and the air-minded public increasing with new generations, all will have lots of scope on a parity with the peace dove, provided liberal laws operate everywhere for the passage of air travelers. Through passengers, those traveling between hemispheres of course will wing for the outer stratosphere and the three mile limit avoiding search or seizure.

By the new fortnightly Pan-American Airways service, just begun, it is now possible to fly from the California coast to New Zealand in four and one-half days, as well as to cross the Pacific to Hongkong in six days. The new route across the Pacific has fewer and longer leaps, at least until arrangements are made for a stop at Suva in the Fiji Islands. It also involves greater changes of temperature, since it extends almost from 40 degrees north to 40 degrees south : that is, from northern temperate zone through torrid zone to southern temperate zone so that the latitude seems to speed past almost before the traveler can make the requisite changes of clothing.

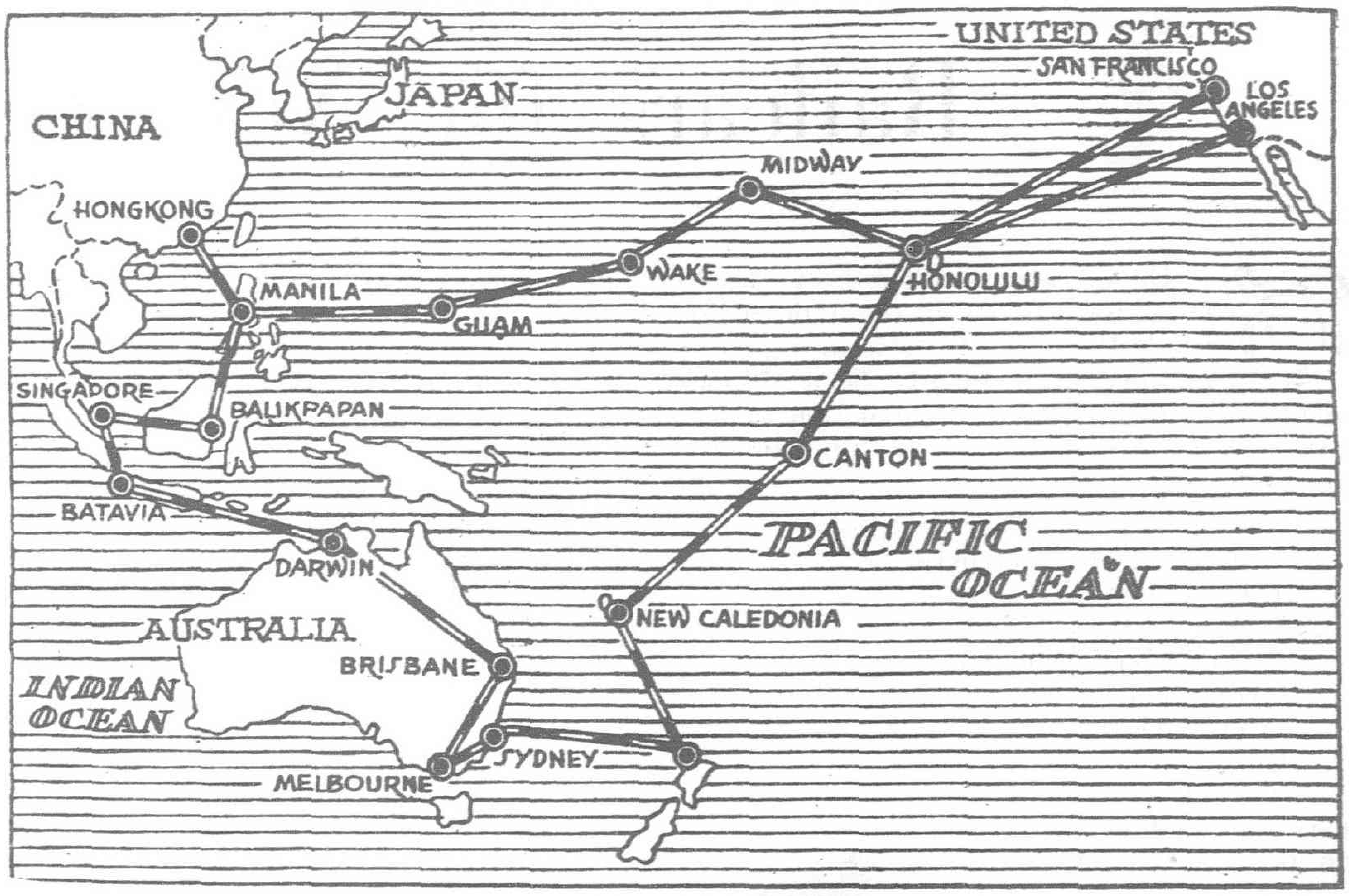
This sudden translation from one Pacific isle to another, from moderate climate to equatorial, then to the Antipodes—where winter reigns in our summer months—provides within less than a week almost a maximum of climatic change and the bodily stimulus which results. It also provides a kind of moving picture of the Pacific in which islands of varied colors and shapes and flora and fauna seem to fit in and out of one's vision day by day.

Clipper travelers sleep one night at Honolulu, the next at Canton Island, 1,914 miles away ; the next at New Caledonia, 1,988 miles further, and the next they may sleep in the totally different environment of Auckland, which will make them think they are in England.

The writer has just completed a swing around much of the Pacific, beginning with this flight to New Zealand and finishing with a Clipper crossing on the northern route from Hongkong ; the distance between New Zealand and Hongkong (equal to a third Pacific crossing) being covered first in a flying boat of the Tasman Empire Airways, then in the Douglas DC3 of the Australian Airways, then in the same type of plane skillfully piloted by crews of the Royal Netherlands Indies Airways. The total distance covered by air was about 28,500 miles in approximately 178 hours, or seven days and ten hours of flying. From Los Angeles to New Zealand was just under fifty hours of flying.

We left Los Angeles at 4.30 p.m. on August 10, slept in the Pullman-like berths of the California Clipper after a warm dinner aboard, and at about seven the next morning went ashore under palm trees and showers of flowery necklaces at Honolulu. A shower bath was followed by breakfast on the marine veranda of the Royal Hawaiian Hotel.

The next morning at sunrise we were off for the South Seas proper. We did not feel at all equatorial, for the Clipper traveled at 9,000 to 10,000 feet where it was cool ; but the air pressure was reduced, so that one's lungs felt undernourished. For a view, there were fluffy white clouds, half covering the blue water far below—and nothing else. Finally, toward sunset, we spied a tiny strip of sand and green, barely visible until Captain Cluthe circled downward.



Airways of the Pacific showing American Clipper Routes

Was that little thing Canton Island? There seemed hardly room for human habitation on that wisp of coral enclosing a greenish lagoon. There wasn't much there, we saw as we alighted on the lagoon and were towed to a pier. But there was a new and comfortable Pan-American hotel which gave us a good dinner and an electric fan to sleep by in this region of warm breezes wafted over warm sea water. But it was less hot than New York in one of its worse heat waves.

A second long jump, of 1,938 miles flown in about twelve hours, brought us over the rugged, brown mountains of New Caledonia. The Clipper dashed over their summits, through swirling pink clouds, to alight upon the bay just at sunset. The island, is nearly surrounded by a coral reef, which creates shoals far from the shore, distinguishable by their light green color and the breakers they cause.

Here in the South Seas is a French colony, where customs officers and police wear uniforms like those in France, where the common tongue of the natives is French, where the chromium and nickle mines attract world-wide attention, where Japanese economic penetration has begun, where the population at the moment of this visit was rebelling against the Vichy Government and lining up with General Charles de Gaulle's "Free France" and the neighboring British Dominions.

There are some 17,000 French in the island. At Noumea, the capital, is an exact reproduction of a typical French provincial hotel, even to the striped wall-paper. The food and wine are very French. But this colony, like so many European settlements in the Pacific, feels helpless until it can rely upon British naval power, or possibly American, to protect it.

On the next day we took a comparatively easy jump of only 1,124 miles (eight hours' flying) to Auckland. When the northern strands and hills of New Zealand hove into sight we were really in the Antipodes, and at Auckland there was a typical English winter rain and what seemed for all the world to be a provincial English hotel. One had the illusion of crossing the Pacific and landing in Europe.

From Auckland to Sydney, 1,348 miles over the Tasman Sea, an Imperial flying boat similar to the clipper but smaller, took us in the record time of eight hours and nine minutes, dropping us at the greatest Australian city which, pleasantly scattered around bays and inlets, somewhat suggests San Francisco. Here the Australian National Airways and the Australian Government picked us up with a Douglas DC3, flying us to the new capital of Canberra, a model town on a plateau which might have been Wyoming; to Melbourne, a city of broad streets and dignified homes which seemed rather more British than Sydney; to the steel town of Newcastle; to a huge sheep ranch on the arid plains near the Murray River; then to Brisbane, one of the most charming towns of Australia, lying on the almost tropical coastal belt of Queensland, where bananas and sugar-cane grow.

There the Netherlands East Indies Government met us with another Douglas DC3. In it we flew to Cloncurry, a very Wild-West-like mining town in the central northern bush, and next day we went on to Darwin, where black aborigines danced and threw spears and where the Royal Australian Air Force showed us their new flying ground and admirable new barracks. Darwin, at the northern tip of the continent, is a crucial strategic point.

From Darwin to Bali is about 1,100 miles, all over water, but the pilot of the huge land plane (Captain Kalberer, a Middle Western American) was not worried by that. It took six hours to jump that bit of the Indian Ocean.

After a motor tour of Bali we flew to the Dutch naval base town of Soerabaya, passing over the huge craters, Kawah Idjen and Roung. Thence the trip was to Djokja, Bandung (the military base) and Batavia, the very Dutch capital. From there a Dutch pilot took us to Palembang, Sumatra, an oil refining center, and then over more dense jungle to Singapore, the great British naval base now heavily fortified by land and air defenses greatly augmented recently.

Again it was a capable Dutch pilot, Captain Frans van Breemen, who took us (after we had returned to Batavia) straight across the Java Sea and across the apparently uninhabited jungle of Borneo to Balik-Papan, the oil town on the eastern shore of that huge island. On the next day we crossed a lot more water northward to Manila. It was striking to find these ultramodern Dutch settlements, and up-to-date refineries and harbors, at the very edge of virgin jungle. Their hospitality, with iced drinks, good food and good beds, was very welcome after a full day of flying.

Crossing the Equator over steaming, tropical Borneo we wrapped in blankets, for at 10,000 feet or more it was chilly, though we could see the heat haze below.

From Manila, the California Clipper under Captain McGlohn, took us to Hongkong in heavy, hot, squally weather, where he had to fly at about 50 feet in sweltering temperature and bumpy atmosphere. From Manila to Guam we were lucky to have clear weather and a tail wind, which enabled the Clipper to make a record of eight hours and eight minutes for a crossing often taking twelve hours.

Fortune favored us again during the 1,508-mile trip from Guam to Wake, the 1,185-mile jump from Wake to Midway and the 1,304-mile lap from there to Honolulu. On this last lap one sees the northern and minor islands of the Hawaiian group, on the other laps nothing at all but cloud and sea. The last leg, Honolulu to San Francisco, 2,402 miles, is usually done in clear weather though occasionally there are circular winds which cause the Clipper to make detours to save time and fuel.

Wind is everything for the aerial navigator. He chooses route and altitude to find the most favorable winds together with the visibility necessary to take bearings from sky or sea. These bearings are constantly taken on the flight deck above the passenger's cabins of the Clipper; they are taken by wireless contact with any ships within reach; from land stations and by observation of sun and stars. Drift is checked by observation of a given point on the water—a smoke bomb or even a particular wave. It is thus the Clippers dashing over trackless sea and cloud, find their way unerringly from island to island.

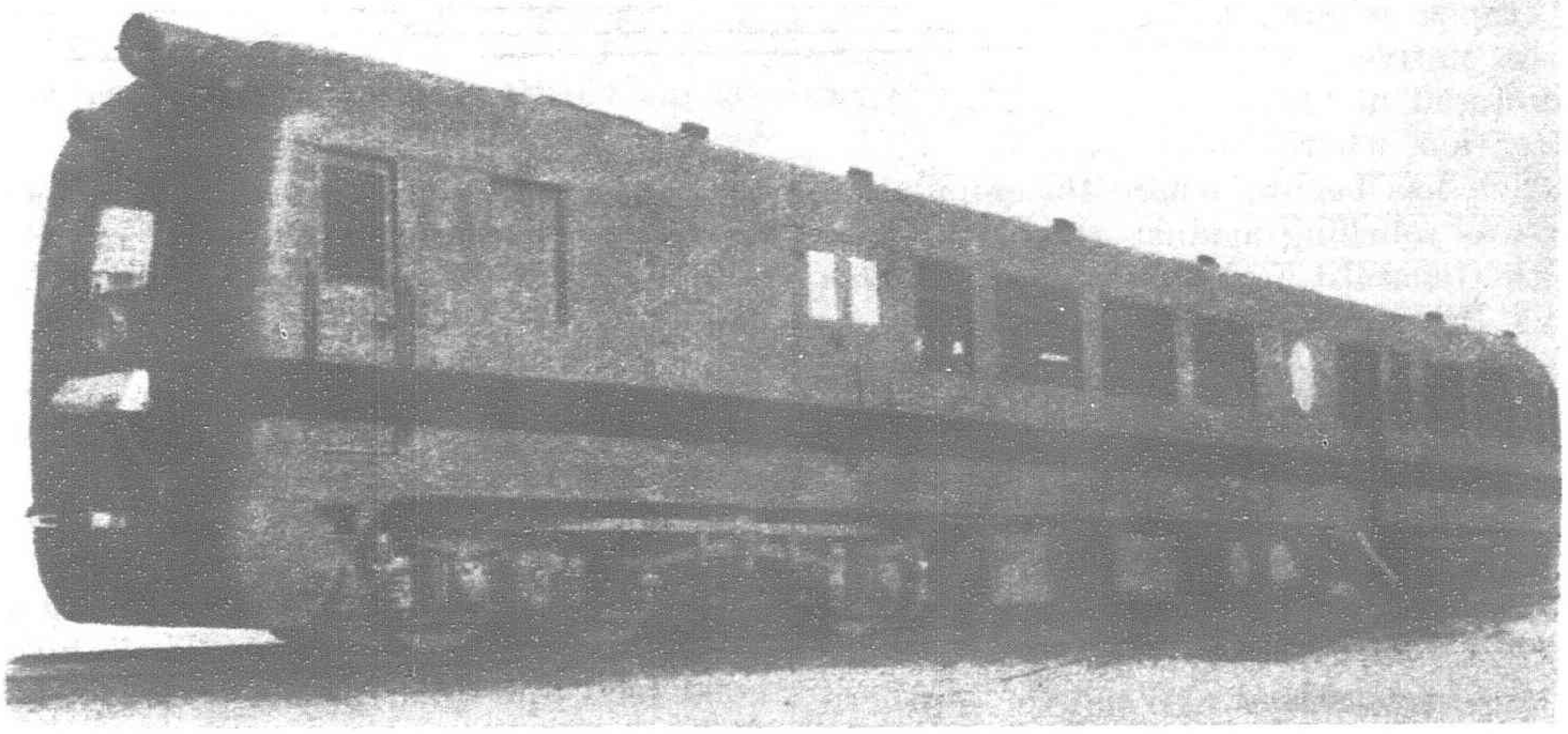
For a trip to the Antipodes one requires both winter and summer clothing, say, one tropical suit and one moderately heavy suit with light coat or raincoat. For if it is summer in North America it is winter down there, and vice versa; meanwhile, is hot at the intermediate tropical points.

Railcars for New Zealand

(The Engineer)

Ten Diesel railcars ordered by the New Zealand Government Railways from the Vulcan Foundry, Ltd., of Newton-le-Willows, are now in course of completion, and a number have already been shipped. All the cars are identical as regards their construction and equipment. The cars have an overall length of 66-ft. 3-in. and the leading dimensions are as follows :—

	Ft.	*in.*
Length over cow-catchers	66	3
Bogie centers	42	6
Power bogie wheel-base	12	0
Carrying bogie wheel-base	10	0
Overall height	11	3
Overall width	8	8⅛
Gauge	3	6



250 h.p. Diesel railcar for New Zealand

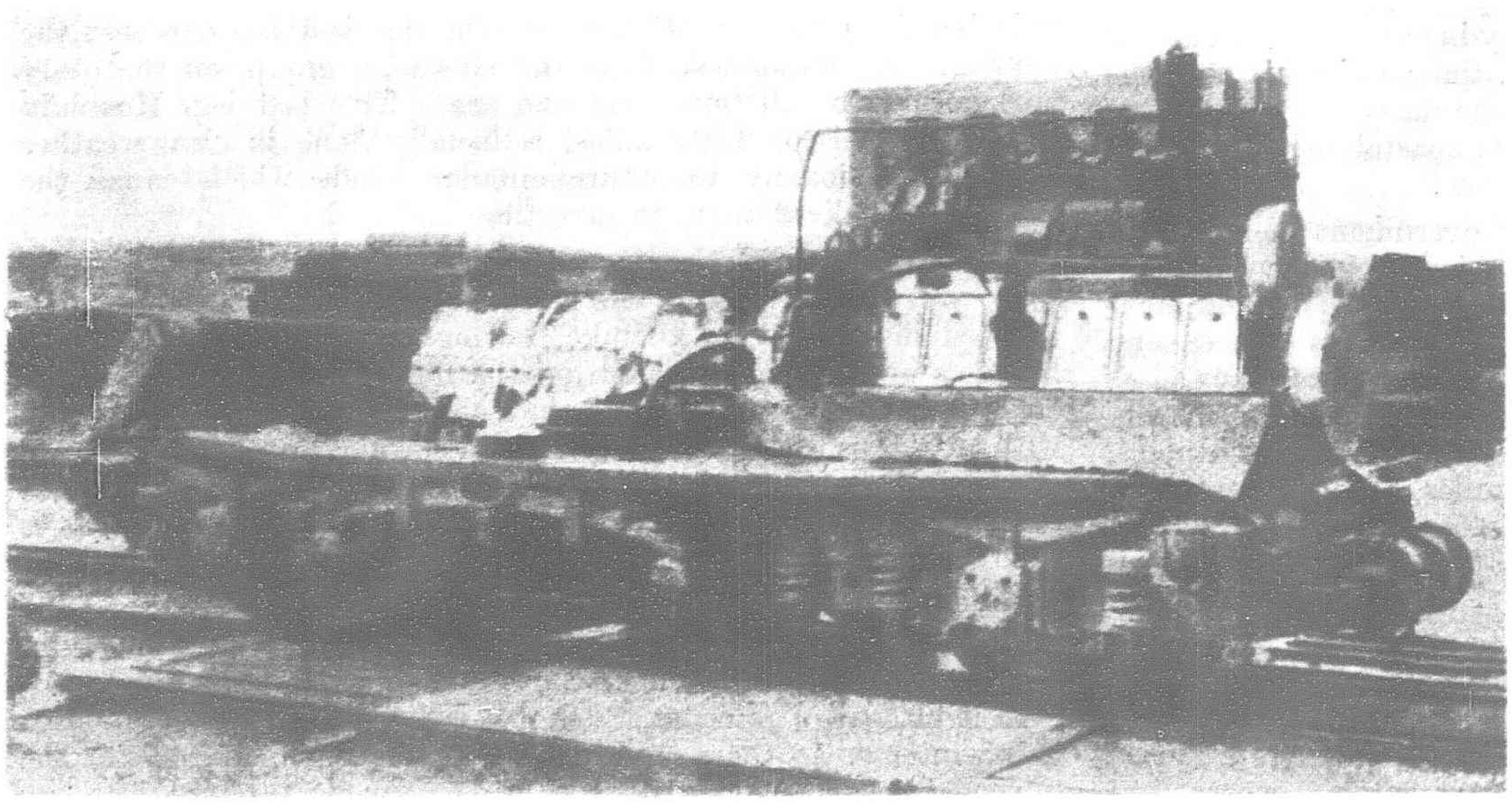
The tare weight with fuel and water is 36 tons and the laden weight with a full complement of passengers, crew and luggage 40.5 tons. The cars are of the double bogie type, a single engine and transmission being mounted in the three-axle bogie at the luggage compartent end. The carrying bogie has two axles. An unusual feature of the power bogie is that the center axle is fixed and fitted with flangeless wheels. The engine and transmission are controlled from either one of the two driving positions situated one at each end of the railcar.

The cars are designed for running in multiple unit. Two coaches may be coupled together and the two engines and transmission systems controlled from either end of the two-car unit. Control of these multiple power and transmission units is carried out by a remote control system. The engine speed between idle and full is controlled pneumatically, and positive and synchronized operation of the change speed and reverse gears is carried out through a simple system to be described later. With the engines running at their maximum governed speed (1,000 r.p.m.) the following are the maximum speeds obtained on the various gears after allowing for slip through the fluid coupling :—14.0, 20.0, 35.0, 51.0, 75.0 m.p.h. Seating is provided for fifty-two passengers in two compartments separated by an entrance vestibule. A toilet compartment is provided in one compartment. A separate driving compartment is provided at each end of the car. Immediately behind this cab at the power bogie end is the engine-room, followed by the luggage compartment. Suitable doors enable the staff to traverse the full length of the car.

The underframe and body of each car form an integral all-welded structure having pillars, carlines and purlins of the " top-hat " section and the cantrails are of double angle section to allow for the roof framing being constructed and jigged separately from the side framing. The main solebars of the under frame are centrally disposed and run from end to end of the car and are well cross braced and stayed. The side and roof panelling is of steel sheets, spot welded to the framing, the coach exterior being flush sided and devoid of mouldings. Carried in the underframe are the main fuel and water tanks, batteries, air reservoirs and an auxiliary sub-frame on which are mounted the compressor, dynamo and engine cooling water radiators and fan drive.

Power and Carrying Bogies

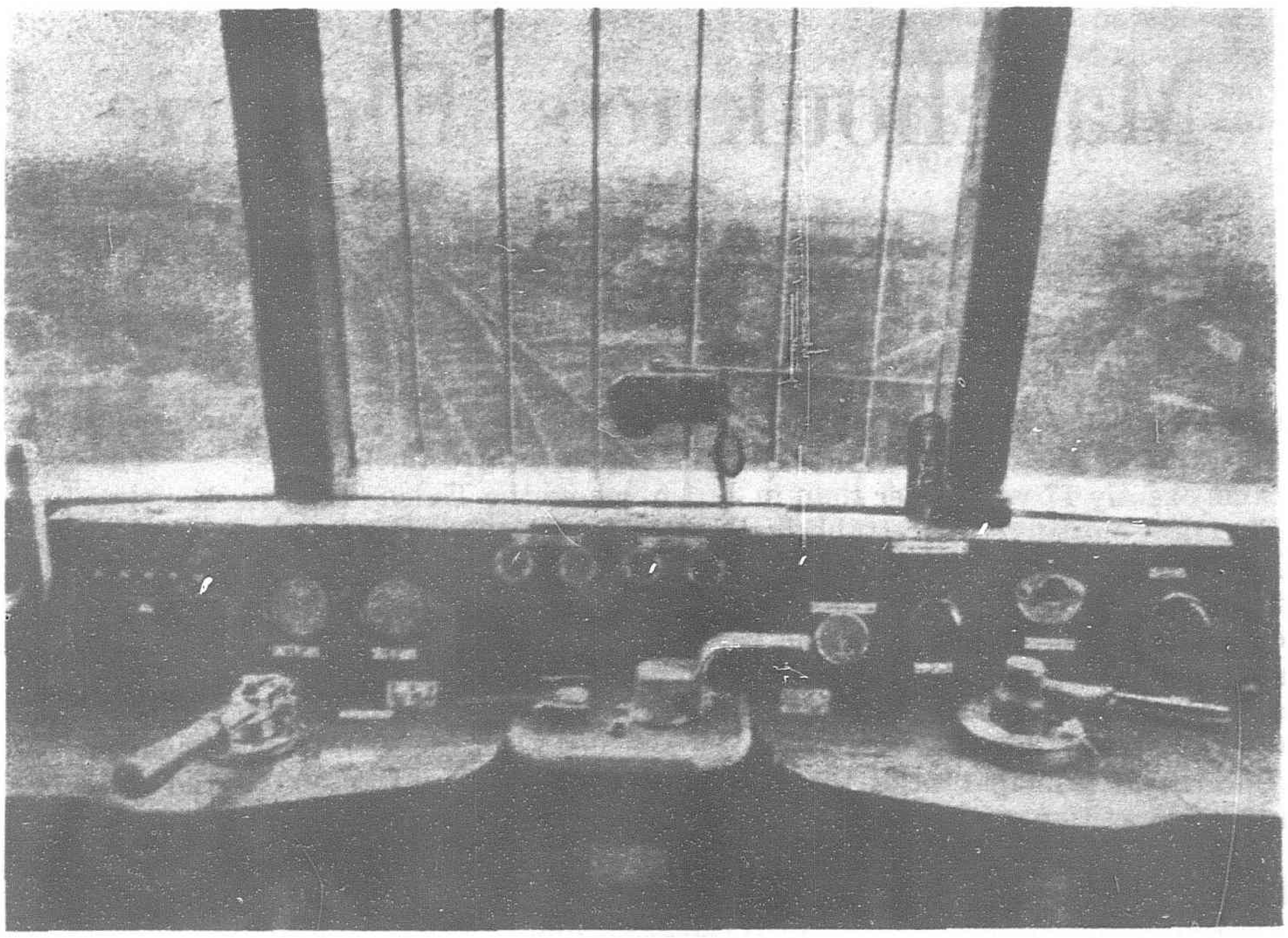
Both the power and carrying bogies are of all-welded construction. The body weight is transferred through side bearers and long laminated springs to the bogie side frames. Mounted on the three-axle power bogie is one Vulcan-Frichs 250-275 h.p. at 1,000 r.p.m. Diesel engine. The drive is transmitted through a Vulcan-Sinclair coupling and a Wilson five-speed gear-box to the outer axles by means of Layrub cardan shafts and David Brown spiral bevel final drive gear-boxes mounted on the axles. The axles run on Skefko spherical roller bearings, and in the case of the center axle of the power bogie, which is fixed, the wheels are also mounted on Skefko spherical roller bearings. Both engine and gear-box are supported at three points on the power bogie frame and the engine supports are provided with rubber mountings of special design to absorb vibration. To accommodate any relative movement between engine and gear-box in service a Standage flexible coupling is provided.



Power bogie

Auxiliary Sub-Frame

The auxiliary machines are mounted on a separate sub-frame suspended from the main underframe approximately midway between the bogies, and these units are driven by power taken from a special output shaft in the gear box which, being geared to the imput shaft, always runs at a speed proportional to engine speed. The gear ratio is 1 : 1.19, so that the auxiliary shaft runs at 1,190 r.p.m., corresponding to 1,000 r.p.m. of the engine, but allowing for the slip in the hydraulic coupling the speed of the auxiliary shaft under full load conditions is about 1,150 r.p.m. The drive from the gear-box to the auxiliary frame shaft is by means of a cardan shaft fitted with Hardy Spicer couplings. At the end of the auxiliary shaft there is a bevel gear-box, which drives the cross shaft for the two radiator fans. The auxiliary shaft and cross shafts run in ball or roller bearings and flexible joints are provided to take care of any deflections in the supporting frame in service. In addition to the radiators on the sub-frame there is mounted a Stones 24-volt self-ventilated dynamo, together with a Westinghouse air compressor of 26 cubic feet capacity, both machines being driven from the auxiliary shaft by multiple Texrope belt drives. The air intake to the compressor is taken from the top of the luggage compartment, whilst the ventilating air for the dynamo is drawn from inside one of the passenger saloons. The air for the engine is also drawn from the top of the luggage compartment through a suitable filter. As the cars may have to work in a dusty atmosphere it was desirable that all air intakes should be as high as possible above the track.

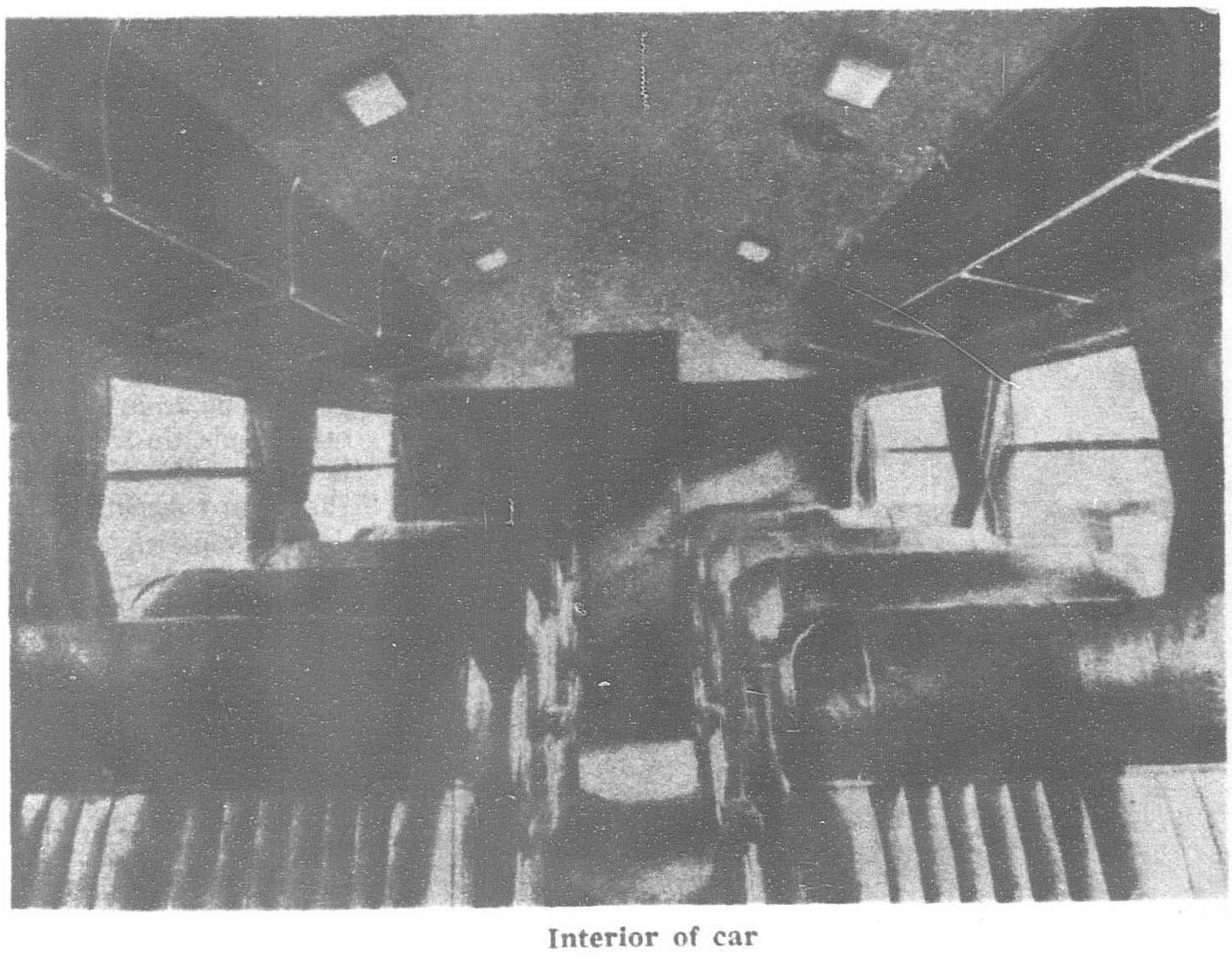

Driver's controls

Engines

The Vulcan-Frichs six-cylinder vertical Diesel engine develops 250 h.p. at 1,000 r.p.m. continuously and 275 h.p. at 1,000 r.p.m. for one hour. The engine has overhead valves operated by push rods. Cylinder bores are fitted with wet liners and the pistons are made of special aluminium alloy suitably heat treated. Fully floating gudgeon pins are locked into position by aluminium pads at each end. Warning lamps are fitted on the driver's instrument panel for lubricating oil pressure and water temperature, but apart from these lights the engine is automatically safeguarded against lubricating oil failure by the governor, which is servo operated by the oil pressure. In the event of the pressure falling to a dangerous extent it at once stops the engine.

There are two water cooling Coventry radiator units on the auxiliary sub-frame. They are placed one on either side facing outwards so as to be dependent upon the fan for air flow and unaffected by the direction in which the car is running. The radiator units are provided with a series of pivoted vanes on the outside which can be turned through 180 deg. Apart from the water in the engine, radiator and car heating system, there is a tank of 34 gallons capacity in the roof of the engine-room. This tank is fitted with a level indicator facing into the driver's compartment. The water in the cooling system is circulated by means of a centrifugal pump mounted on the engine bed frame and driven by V belts from a pulley fixed to the hydraulic coupling.

The engine governor is mounted on the same platform as the fuel injection pump and is driven from the end of the injection pump camshaft. It is designed to control the engine at idling and maximum speed, but in the middle range has no influence on the fuel injection, which is entirely controlled by an air-operated piston under the control of the driver. The control rod which operates on the fuel rack is extended through the pump and comes up against a stop when the fuel injection corresponding to full load is reached, the end of the rod being provided with a roller which presses against a wedge. When overload is required from the engine this wedge is raised a definite amount by means of a solenoid operated by an electrical contact on the driver's throttle control valve, contact being made when the valve is moved beyond full load position.


Interior of car

The engine speed control or throttle is pneumatic between idling and full speed, being operated by an air cylinder to which air is admitted at varying pressures from a train pipe. The pressure of air in the train pipe is determined by the degree of movement of the manual control at the driving end, so that the response on one or two engines is in all cases directly proportional to the opening or closing of the manual control. A deadman's feature is embodied in the control, whereby sudden release of the deadman's pedal—as in the event of a human failure—causes the emergency valve to be opened, thus applying the train brakes, bringing the engine speed down to idling, and putting the gear-box into neutral. Control movements in the speed change and reverse gear-box are also effected pneumatically, but here the admission of air to the various operating cylinders is through a series of electro-pneumatic valves or "magnet valves," which are mounted directly on the gear-box. Connections from the magnet valves to the gear controller at either end comprises simple electric circuits, and as the valves are mounted directly

(Continued on page 36)

Manchoukuo's Electric Power Program

(Manchuria)

The electric industry in Manchoukuo was first launched in October 1902, exactly 38 years ago, with the installation of three kva coal power generators of 250 kilowatt capacity in Hama-cho in what was then Dalny under the domination of Imperial Russia, to-day the thriving port city of Dairen. The birth of the electric industry in Manchoukuo came exactly 17 years later than in Japan, where the Toden (Tokyo Electric Company) was established in 1887. In 1926, the South Manchuria Electric Company was established, and leaving the fold of the South Manchuria Railway Company, commenced the co-ordinated development of the electric industries in the S.M.R. zones excluding the electric power generation concerns in Fushun and Anshan, providing electricity for home consumption. In the meantime, Chinese interests also established electric generation concerns in principal cities throughout Manchoukuo, and entered into competition with the South Manchuria Electric Company.

However, following the establishment of Manchoukuo as an independent state in 1932, the Government launched a plan for controlling the whole electric industry in Manchoukuo and established, in November 1934, the Manchuria Electric Corporation. The following electric companies for the generation of electricity through coal were amalgamated by the new Special Corporation :

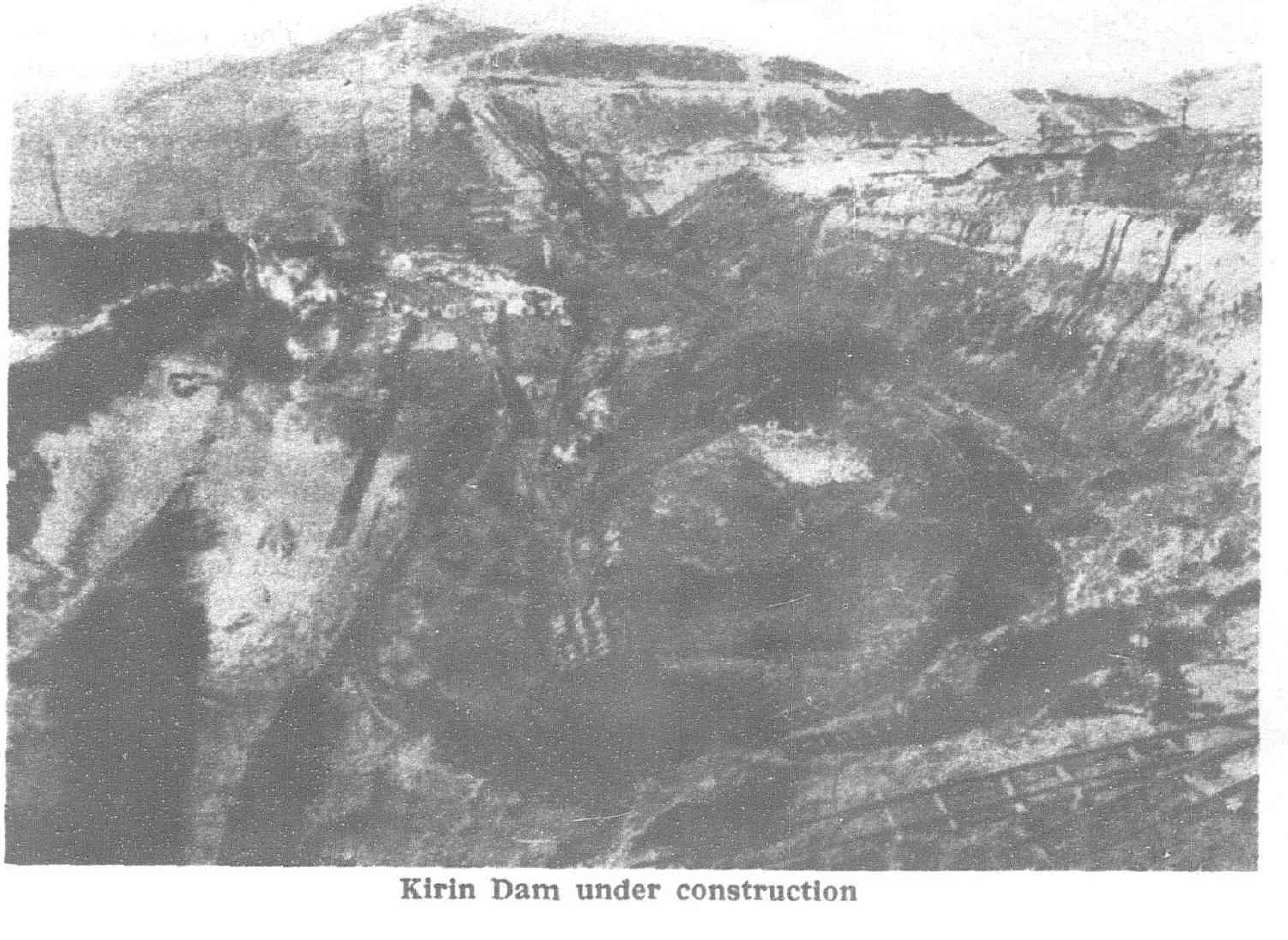
Japanese Interests

The South Manchuria Electric Company, Ltd.
(Minami Manshu Denki Kabushiki Kaisha)
The Yingkow Waterworks and Electric Company, Ltd.
(Eiko Suido Denki Kabushiki Kaisha)
The North Manchuria Electric Company, Ltd.
(Hokuman Denki Kabushiki Kaisha)

Manchu Interests

Fengtien Electric Company
Changchun Electric Company
Kirin Electric Company
Harbin Electric Bureau
Tsitsihar Electric Company
Antung Electric Company

Since then, the electric industries in Manchoukuo have expanded and developed with the passage of each year, and a large number of localities, potential sources of hydro-electric power have been discovered. However, no construction work on any hydro-electric generation plant in Manchoukuo has been, as yet, completed, and all the electricity in Manchoukuo, at the present time, is generated by caloric power. By the end of 1938, the total electricity being generated by caloric force in Manchoukuo totalled approximately, 600,000 kilowatts, including the electric power produced by the Dengyo (Manchuria Electric Corporation), and the power plants of the Fushun Collieries, the Anshan Iron Works, and the Penhsihu Colliery and Iron Works. Following the completion of the Five-Year Industrial Expansion Program of Manchoukuo, the total electricity capable of being produced by hydro-electric and caloric generation is expected to be in the vicinity of 2,500,000 kilowatts.



Kirin Dam under construction

The Development Program

The coefficient of the development of electric generation in Manchoukuo 1938, making the index for 1925, 100, reveals the figure of 550. In other words an increase of over 200 per cent every five years is revealed. The total electricity produced in the fiscal year of 1938 reached the figure of 1,600,000,000 kilowatts, revealing an increase of 17 per cent as compared with the figures for the previous year. In addition to this natural increase in the production of electric power, the demand for electricity has progressed by leaps and bounds as a result of the positive expansion and strengthening of various industrial activities, hand in hand with the development of the Five-Year Industrial Expansion Program. When the Five-Year Industrial Expansion Program is once completed, the demand for electricity is expected to surpass the 2,000,000 kilowatt mark. When the still distant future is taken into consideration, the heavy industries under the supervision of Mr. Yoshisuke Aikawa (President of Manchuria Heavy Industry Corporation) alone, it is said, will consume more than 10,000,000 kilowatts of electric power. Thus the realization of a time, when Manchoukuo will need 10,000,000 kilowatts of electricity is not simply a fantastic dream.

However, Manchoukuo is richly blessed geographically and abounds in localities where water power may be developed cheaply. In view of the bright prospects for development of these places, the Manchoukuo Government has established the basic principle of hydro-electric generation first and electric power generation by calorification second. In line with this principle, the General Bureau for Hydro-electric Construction was created within the Government and has been entrusted with the task of operating hydro-electric enterprises under state management.

On the other hand, the Manchuria Electric Corporation, the only one of its kind in Manchoukuo, has been entrusted with the work of engaging not only in electric power generation by calorification but also transmission and distribution of electricity throughout the whole of Manchoukuo. The co-ordination and supervision of the work of these two concerns was formerly in the hands of the Department of Industry, and now following its abolition in that of the Department of Finance and Commerce. This unified and orderly control is, needless to say, a splendid example of the working of controlled economy.

Even though Manchoukuo's basic policy has placed its greatest emphasis on hydro-electric generation and secondly on electric generation from coal or other fuels, the situation is quite different from that in Japan. In Japan, electric generation by calorification forms only a supplement to hydro-electric generation. In Manchoukuo, the significance of the emphasis on hydro-electric power reveals not only its importance but its abundance. As a practical question, electric generation by

A crane at work on the Kirin Dam

coal calorification will be made stationary, and hydro-electric generation, with ample room for further development, will be given the function of self-adjustment in accordance with demand. Such are the advantages possessed by Manchoukuo.

The reason for this lies in the fact that practically all of Manchoukuo's water power is found in the form of vast reservoirs, and possesses extreme elasticity. On the other hand, electric generation by calorification is faced with the inevitable fate of being limited in future to the use of scrap coal, for which no other means of utilization can be found.

The total coal deposits in the whole of Manchoukuo increase in figures with the progress of geologic surveys, and are sometimes estimated at 20,000,000,000 tons, and by others at 30,000,000,000 tons.

Scrap coal as a general rule is an inevitable by-product in the mining of coal, and should the present annual coal production of ten odd million tons eventually increase in future to 100,000,000 tons, and the proportion of scrap coal be assumed as constituting 20 per cent of this total figure, the means of utilizing 20,000,000 tons of scrap coal must be studied. Use of this coal at the mine head for production of electric power is the most advantageous, and if all this scrap coal could be used for this purpose at the present time, it could be converted into 3,000,000 kilowatts of electricity. Thus, assuming the economic limits of electric generation by calorification to be 3,000,000 kilowatts, and using this as a base, the remaining part, amounting to 7,000,000 kilowatts, must be produced through hydro-electric generation. Such should be the economic policy of Manchoukuo in the development of hydro-electric resources. In this sense, we have placed hydro-electric generation first and production of electricity by calorification second.

Electricity in Manchuria was in general on a 50-cycle current, and every effort had been made to standardize the current as much as possible at 50-cycles. A survey, undertaken by Director Oka of the Manchuria Electric Corporation at the end of 1938 reveals the different capacities of power stations according to cycle as follows:

Cycle	*Electric Generation Capacity*	*Per cent*
60	95,000 kw.	20.6%
50	337,500 ,,	73.4%
25	26,000 ,,	5.6%
Direct Current	1,500 ,,	0.4%
Total	460,000 ,,	100.0%

However, electricity in Chosen (Korea) has been standardized from the very beginning at 60-cycles. And when it was definitely decided that the undertaking of the hydro-electric development project on the Yalu River, which constitutes the border between Chosen and Manchoukuo, was to be under joint Chosen and Manchoukuo management, the cycle question arose once more demanding final decision. Numerous discussions were held and, as a result, it was decided the year before last to standardize electric current in Manchoukuo at 50-cycles.

The voltage to be adopted in the transmission of electricity along important high tension lines, it has been decided, will be 220,000-volts.

Co-ordinated River Development Plan

Topographically speaking, Manchoukuo is surrounded on all sides by mountains. To the south-east lies the Paitaoshan range, to the north, the Lesser Hsingan mountains, and, to north-west, the Greater Hsingan range. In this way, great mountain ranges enclose Manchoukuo in the shape of a huge horse shoe, creating a vast basin in the central part. This central section is for the most part watered by two great river systems, the Sungari and the Liao.

Further, precipitation in Manchoukuo is comparatively light and only 300 to 900 millimeters of rainfall during the whole year, approximately one-third of the total annual rainfall of Japan. Furthermore, roughly 70 per cent of the total precipitation for the whole year falls during the two months of July and August, the rainy season in Manchoukuo thus giving rise to considerable hardships.

In fact, the extreme seasonal changes in volume of the flow is characteristically the worst feature of the rivers of Manchoukuo. The rain that falls during this wet season flows all at once into the central bowl-like basin, just as if water were poured into a tray. On the Sungari River the gradient between Tsitsihar and Harbin is 1 to 20,000, and along the lower flow of the Liao River from 1 to 7,000 to 1 to 10,000, revealing the extreme flatness of the country. Moreover, the rain falls at one time during the summer season on the flat plains rather than on the higher plateau. In the last analysis, the disastrous floods of Manchoukuo point first of all to the accumulation of water during the rainy season in the central basin area.

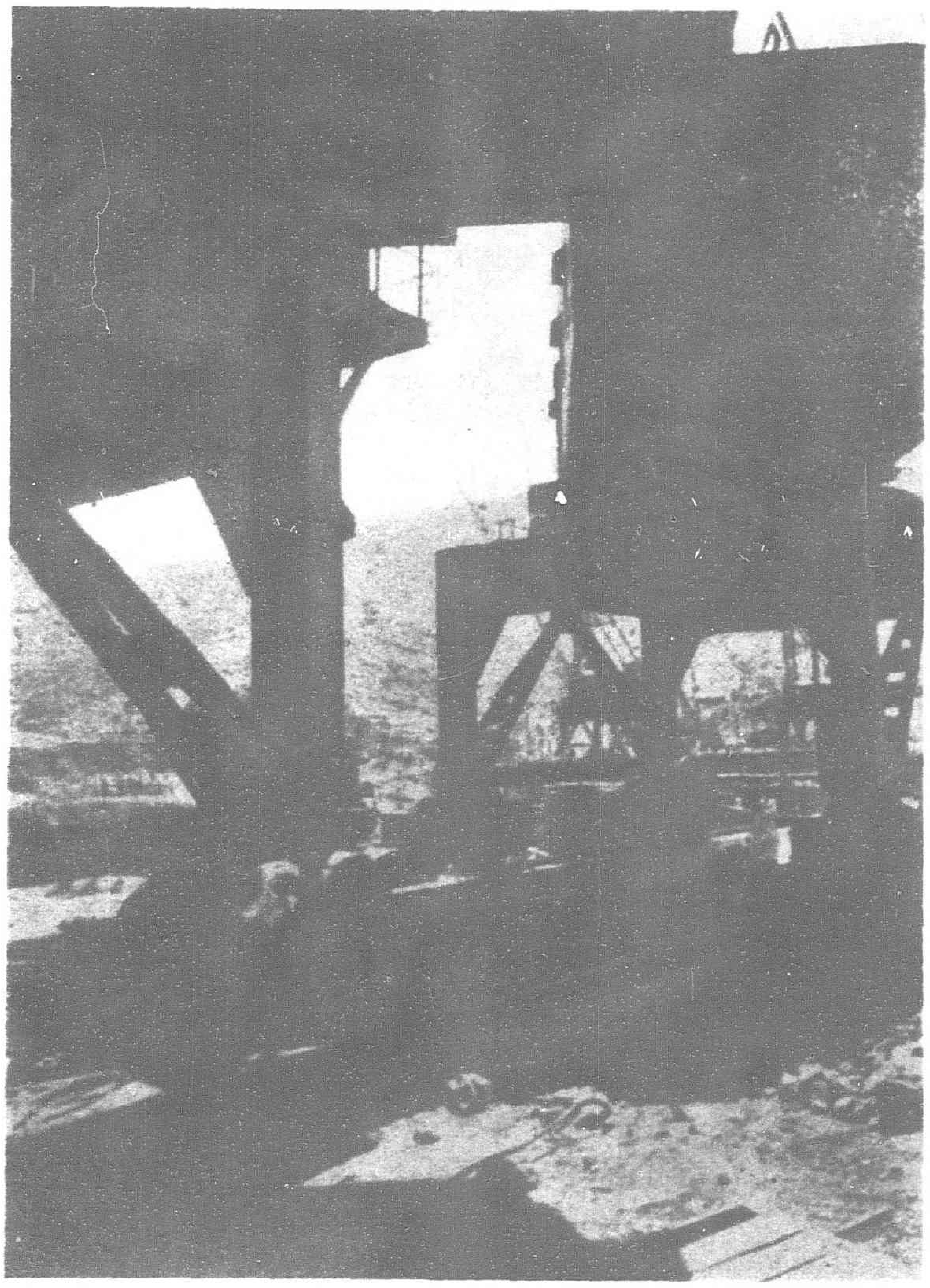
In 1932, 500 cho (one cho equals 2.45 acres) in the Sungari watershed and 1,500,000 cho in the Liao River watershed were turned into vast lakes.

In order to utilize such rivers no other means are found than the creation of huge reservoirs. This method involves the construction of tremendous dams on the upper flow of the rivers in areas scarcely inhabited and, by collecting excess water during the rainy season, regulate the flow of the river at an average level for the whole year, at the same time providing water for hydro-electric generation as well as for irrigation purposes. Such a scheme not only contributes to the facilitation of river navigation but is the means of radically obviating the flood menace, which has been termed the "mother of bandits," and is indeed a plan for killing two birds with one stone. In other words, the flow of the river is fully exploited, fully used and then emptied into the sea. Furthermore, such a scheme calls for the complete utilization of the river flow during this time, and the complete development of land through co-operated technique. This we have termed the Co-ordinated River Development Plan which embodies one of the principal national policies of Manchoukuo.

The situation, viewed from the simple standpoint of hydro-electric generation, had given rise to a feeling of hopelessness on the part of the people of Manchuria, who despaired of any success in hydro-electric generation projects in Manchoukuo, in view of the extremely unequal distribution of rivers and the extreme flatness of its topography. The adoption of this so-called reservoir system, as described above, turns misfortune into fortune, and the time is not long distant when Manchoukuo will emerge, next to North America, as one of the greatest countries for hydro-electric generation.

To-day, if water power in Manchoukuo is developed by such means, a water-power development project totalling 7,400,000 kilowatts is not in the least difficult. Excluding such international rivers as the Amur, limiting the program to localities where construction may be undertaken at a cost lower than 300 yuan per kilowatt, 2,600,000 kilowatts may be developed on the Sungari River, 2,000,000 kilowatts on the Yalu, and 2,800,000 on other rivers, giving us a total of 7,400,000 kilowatts for the whole of Manchoukuo.

For topographical reasons, as given above, localities suitable for generation of electricity by the reservoir system, with the exception of a few areas, are by far in the majority.



Another view of operations on the Kirin Dam

Abundance Generation Areas

The extremely level topography of Manchoukuo is particularly suitable for the creation of vast reservoirs. Thus, practically the whole volume of the annual flow may be dammed, becoming a tremendous body of water that can be rationed for use on an average during the whole of the year. Such instances may be multiplied a number of times, revealing the large number of large-scale hydro-electric generation sites that are to be found in Manchoukuo.

As previously outlined, the hydro-electric generation projects, thanks to the large-scale reservoir system, besides producing electricity also contribute to irrigation, river transportation, while providing water for industrial purpose. Together with the co-ordinated exploitation of the flow of rivers, it fulfils its fundamental aim of riparian improvement, river conservancy and flood control, and makes possible the complete development of the country.

(*a*) Cultivation is not intensive in the areas to be submerged. And since the inhabitants in these areas are few, expenses involved in compensating farmers for their land is extremely low.

(*b*) Already established buildings and claimants or holders of special rights are extremely few in number.

(*c*) The flood season is clearly defined, and the flow may be predicted with extreme accuracy, cutting down the dangers to construction work.

(*d*) The ability to exploit the freeze during the winter months simplifies construction, depending on the type of work as well as cutting down expenses.

(*e*) Through the co-ordinated development of rivers, as described above, construction costs may be divided and shared by other interests involved.

Outline of Surgari River Project

The site of this undertaking lies approximately 24 kilometers above Kirin on the upper reaches of the Second Sungari River. Here is to be found a natural gate in the mountains, overlooking the great plain that starts from this point to cover the whole of North Manchuria. This great gate, through which the Sungari River flows into the vast plains beyond is to be cut straight across by the erection of a huge concrete dam. By stemming the waters of the Sungari, an artificial lake 170 kilometers in length will be created, which next to the lake formed by the Boulder Dam in the United States, is the largest of its kind in the world. Utilizing the drop and the vast volume of stored water, hydro-electric power will be generated here on a large scale, providing tremendous potential power for the development of industries in Manchoukuo.

On one hand, this reservoir will regulate the floods on this river, and by eliminating flood damages to 160,000 cho of land (one cho equals 2.45 acres) on the lower stretches of the flow, transform this area into fertile farm land. In addition, the river bed in the lower stretches of the Sungari will be fixed, and the flow regulated to an average mean, thereby contributing greatly to water transportation on the Sungari River. Much is, therefore, anticipated of the project.

Geology of Dam Site

The bed-rock found at the site of the Sungari River First Dam is an extremely hard formation, known as hornfeld. Originally this rock was aqueous in nature, but as a result of high pressure of the earth's crust, became an incandescent mass of molten matter, and was changed into igneous rock. Hornfeld is twice as solid and hard as granite. Furthermore, the same rock formation is found on both banks of the river, while its direction and inclination are similar. There are also no traces of great changes as a result of earth faults or shrinking of the earth's surface. Thus, fissures are rare, and the bedrock is capable of standing considerable pressure. Consequently there is no room for anxiety at all with regard to the solidity of the base of the dam.

Water Available

The watershed at the site of the dam is 42,500 square kilometers in size, and is roughly three times that of the total area of land watered by the greatest river system in Japan, the Tonegawa.

No hydraulic survey was made of this river during the time of the former Northeastern Régime, and thus information that could be depended upon, covering the past, was exceedingly meagre. The records from 1923 on regarding the river flow, observed by the North Manchuria Railway Bureau, following the establishment at a water-gauge on the Sungari river at Chantiehchiao, hand in hand with the progress in the construction of the southern line of the North Manchuria Railway to the vicinity of Chantiehchiao, were practically the only data available as a basis of study. The first really whole-hearted survey of the flow of the Sungari was undertaken at necessary points along the river, when the State Highways Bureau established water-meters at Kirin and eight other places, 1933, in the second year of the founding of Manchoukuo. These two instances mark the first hydraulic surveys of this river. Since then, the Hydro-electric Bureau has continued the study of the river flow.

(Continued on page 28)

Manchurian Railways

By TERUO SHIMIZU

(Eastern Asia)

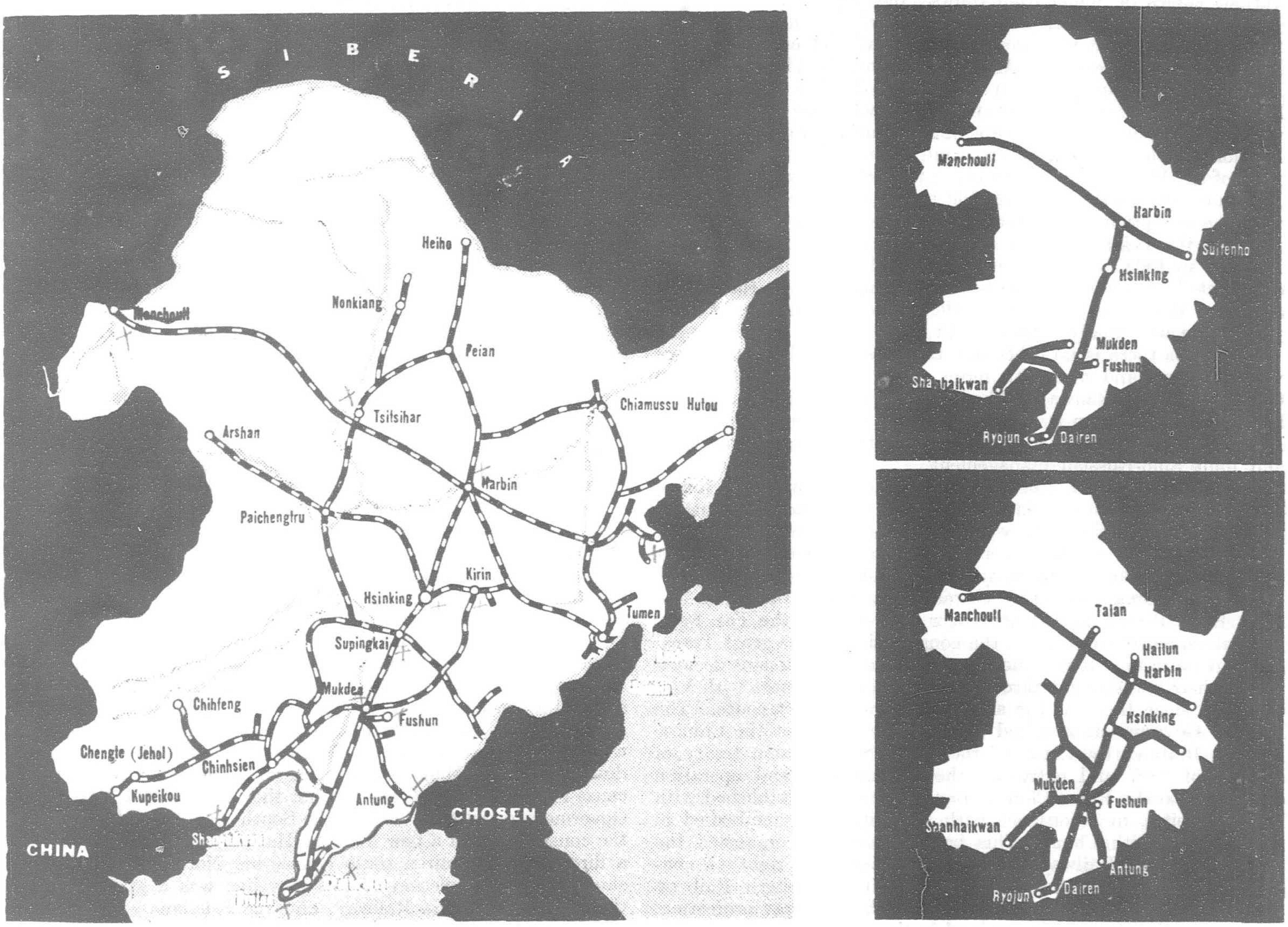
MANCHURIA is the communications crossroad of the Far East. Its railways not only provide transportation and communication facilities within its own borders, but also serve as indispensable overland links in international railway systems connecting Japan, China and Europe *via* the Soviet Union. Crack express trains carry Japan-China passengers through Antung, Mukden, Shanhaikwan to Peking, and Europe-bound passengers from Dairen or Antung through Mukden, Hsinking, Harbin, and Manchuli to Moscow over the Trans-Siberian Railway.

Millions of tons of agricultural products, minerals, timber, manufactured goods and a host of other Manchurian resources and products, some destined for far foreign markets, travel overland on freight carriers seeking internal markets or an outlet to foreign lands. Many producing centers were born in the more remote regions through the opening of railway lines, and many were the new commercial products which made their début because of chances of marketability provided by railways.

To-day, an intricate network of 10,000 kilometers of railway lines literally cover the whole country. There is practically no section of importance in the interior that is without access to railway transportation facilities.

As a matter of fact, the railways in Manchuria owe their creation to the international rivalry that colored the pages of Manchuria's recent history. In this sense we can say that the political and diplomatic history of modern Manchuria is the history of its railway development. British interests pioneered the laying of the first tracks in Manchuria when, in 1894, the Peining Railway was extended beyond Shanhaikwan as far as Suichung. Then in 1897, Czarist Russia by way of notifying the world that she was to be reckoned with hereafter in the construction of railways in Manchuria, launched a huge construction program calling for the laying of a railway system shaped like the letter " T " from Harbin. All three sections were started from Harbin, the western section toward Manchuli, the eastern section toward Nikolskussuriiski in the Maritime Provinces, and the southern section toward Dalny (now known as Dairen). The section south of Changchun (now Hsinking) on the southern branch line was ceded to Japan with the conclusion of the Russo-Japanese War and for the management of this line, the South Manchuria Railway Company was organized in 1906.

From the geographical standpoint, not to mention the standpoint of railway economics, the development of Manchuria's railways displays a marked resemblance to the development of



Left: Railway net-work of Manchuria in 1940; above right: railway map of Manchuria in 1905; below right: railway map of Manchuria in 1930

railways in the northwestern states of the United States, in the prairies of Canada and in the central plains of Argentina, which was dependent to a large extent upon large-scale agriculture.

Manchuria is endowed with fertile soil well suited for agriculture, is a promising land for immigration from Japan and China where the density of population is uncomfortably high, has abundant timber resources and deposits of iron and coal, is well suited for industrial development, and has construction materials and a cheap labor supply. All these favorable factors have helped to make Manchuria an ideal land for railway construction and operation.

Nevertheless, slow development characterized the history of railway construction in Manchuria. Railway enterprises in Manchuria before 1931, were conducted in an age contemporaneous with the period of keen rivalry among various political influences, and prevailing conditions did not permit the construction of railways as easily as in North and South America where such questions were dealt with as purely economic problems. In the past, there was no case whereby a new plan for the laying of an important railway in Manchuria was not a direct result of successful diplomatic negotiations or interchange of notes.

Though Manchurian railway transportation has recorded remarkable progress, one which any advanced senior nation can well be proud of, its history goes back only forty years. When considered by periods we can divide the history of railway development into four stages, but since time and space do not permit a thorough study of the political history of Manchuria (it is not possible to divorce railway development from the political history of Manchuria, the two being so closely entwined), and since the innumerable international events which took place during the past forty-odd years in themselves constitute a voluminous study in Far Eastern international relations, this article will be confined to the various stages of Manchurian railway development.

The First Stage, 1894-1904.—As previously mentioned, the pioneers among the railways when the railroad era dawned on Manchuria were the Peking-Mukden line and the Chinese Eastern Railway. Both Great Britain and Russia decided to build these lines after extracting legal rights from China when the Ching dynasty was weakest, but since their aims in Manchuria were destined for a headlong clash, the two Powers came to an understanding in the form of the Muravieff-Scott Agreement in 1899, by virtue of which Britain recognized Russia's sole right to construct lines in Manchuria with the exception of the extension of the Peining Railway. As a result, the Peking-Mukden line was opened to traffic as far as Hsinmin in 1903, and after the Hsinmin-Mukden line, which was constructed as a military line by the Japanese during the Russo-Japanese War, was transferred, the entire stretch from Peking to Mukden was finally completed in 1905.

Perhaps there is no other line that has gone through a more varied history and met with more chequered fortunes than the Chinese Eastern Railway. The greater part of its thirty-year life which ended when it became a part of the Manchoukuo State Railways was characterized by wars, revolutions, and international and joint Sino-Russian management.

From about 1850, Russia began to develop with the inflow of French capital resulting in an advance in the capacity of Russian industry. In addition, heavy industrialists acquired control over the foreign policy of the government. The sudden development of national productive capacity resulted in over-production and necessitated foreign outlets. Thwarted by Great Britain in the Near East, Russia turned her eager eyes toward the Far East, and subsequently carried out the construction of the great Trans-Siberian Railway. It was most natural that the Russians decided to run their line straight through Manchuria to connect with Vladivostok, since this was the shorter and more direct route. The Russian Government acquired the right to construct the Chinese Eastern Railway by virtue of the secret Sino-Russian treaty of alliance of 1897 and entrusted the management and operation of the line to the Russo-Chinese Bank which was established with French capital, in accordance with the stipulations embodied in the contract with China. This bank accordingly organized the Chinese Eastern Railway Company. Besides the right to construct and manage railway lines the Chinese Eastern Railway acquired a number of other concessions such as railway protection, river navigation, acquisition of land in the railway zone, operation of mines, timber rights, telegraphic, telephonic and postal rights, and judicial rights and administrative rights in the railway zone. These privileges made the Chinese Eastern Railway an agent of the home government for the encouragement and execution of immigration, or more precisely, a monopolistic colonization company.

In March, 1898, Russia, in accordance with the Treaty Concerning the Lease of the Liaotung Peninsula, obtained a lease extending over a period of 25 years of Port Arthur and Dalny, and also the right to connect the port of Dalny with a point on the branch line of the Chinese Eastern Railway.

Construction work on the Chinese Eastern Railway was pushed at a rapid pace commensurate with the progress being made on the Trans-Siberian line. Russian capital, especially the steel industry, and generous appropriations made from national treasury, gave full support to the gigantic work. With the arrival of construction laborers at Harbin on May 28, 1898, the grand project was commenced simultaneously in three directions radiating from that city. Likewise, work was begun from the three opposite points. Thus in 1903, a total length of 2,400 kilometers on the Chinese Eastern Railway was officially opened to traffic. The completion of this extensive stretch of railway, within three years after the actual commencement of construction, must be hailed as one of the outstanding engineering landmarks during the latter part of the nineteenth and the early part of the twentieth centuries. In view of the difficulties presented by prevailing natural and social conditions, the creation of the Chinese Eastern Railway, together with the completion of the Trans-Siberian Railway deserves the highest respect as a marvelous engineering accomplishment of the time.

The total capital invested in the construction of the Chinese Eastern Railway has been given as 302,000,000 roubles or an average cost of 122,000 roubles per kilometer. At the time the Chinese Eastern Railway was completed, it was felt that the future of the railway was boundless, but no sooner had operations begun than the Russo-Japanese War broke out in February, 1904, and the new railway was compelled to serve military purposes for two years. After the conclusion of the Portsmouth Treaty, the Chinese Eastern Railway suffered two blows since that section between Changchun (now Hsinking) and Dalny of the branch line was ceded to Japan which meant that the South Manchurian market was completely lost, and at the same time the birth of the South Manchuria Railway Company heralded the rise of a formidable competitor. More unpleasant events were to follow. The outbreak of the Russian Revolution in 1917 paralyzed the management of the Chinese Eastern Railway and for several years it was placed under international supervision, an arrangement which was fraught with uncertainty. On top of this chaotic situation, the radical decline of the Russian rouble brought about a serious financial crisis which almost ruined the line. In the meantime a new competitor, the South Manchuria Railway, began to invade the North Manchurian markets. In the midst of such overwhelming odds and haphazard management, the Chinese Eastern Railway was powerless against the hostile measures put into play by the Chinese Northeastern Régime, which aimed at the recovery of railway rights and definite control of the line. Then came the denouncement of all rights held by Imperial Russia which shook the political framework of the Chinese Eastern Railway. Riding on the crest of the worldwide nationalistic wave which rose after the Great War, the Chinese Government launched an active offensive to recover railway rights and maneuvered Russia into signing the Mukken Agreement in October, 1924, which placed the Chinese Eastern Railway under joint Sino-Russian management.

Even after the advent of Manchoukuo in 1932, the North Manchuria Railway (formerly the Chinese Eastern Railway) was operated under the direct management of Soviet Russia and constituted a special element in the railway system of the new State. If the Soviet authorities had pursued a policy of collaborating with the railway system of Manchoukuo instead of trying to dominate North Manchurian markets, there might have been no cause for anxiety, but such was not the case, and the Manchoukuo Goverment decided to entrust the South Manchuria Railway with the construction of a new line, the Harbin-Lafa Railway, to create a direct Harbin-Dairen route connecting North and South Manchuria. The completion of this new line was a grave threat to the North Manchuria Railway, and the Russians were compelled to relinquish it through sale. An agreement was signed on March 23, 1934, at Tokyo, and, simultaneously, the North Manchuria Railway as well as all affiliated properties and facilities thereof, were taken over by the Government of Manchoukuo at a price of 170,000,000 yuan. Thus, the historic Chinese Eastern Railway was incorporated into the Manchoukuo State Railways system after a chequered and exciting career of international significance. Immediately following the transfer, the section south of Harbin was renamed the Harbin-Hsinking line, the western section, the Harbin-Manchuli line, and the eastern section, the Harbin-Suifenho line. The gauge was converted from the Russian 5-foot to standard gauge in a little less than three hours, and to-day, the super-express "Asia" covers the distance between Harbin and Dairen in 12½ hours.

The Second Stage, 1905-1924.—The second stage covers the period between the cession of a part of the Chinese Eastern Railway, namely the line south of Changchun to Japan as a result of the Portsmouth Treaty of 1905 and 1924, the year in which the Mukden Agreement was signed between China and Russia. It was during this period that keen rivalry between the Russian Chinese Eastern Railway and the Japanese South Manchuria Railway reached its height, and it was also during this same period that serious international rivalry developed among Great Britain, the United States, France, and Japan over railway and other economic enterprises on the continent.

The South Manchuria branch system of the Chinese Eastern Railway was composed of (1) the South Manchuria Branch line (Harbin to Port Arthur), (2) the Dalny Branch (Choushuitzu to Dalny) (3) Liushutun Branch (Tafangshan to Liushutun), (4) Yingkou Branch (Tashihchiao to Yingkou), (5) Yentai Branch (Yentai to Yentai Coal Mines), and (6) the Fushun Branch (Ssuchiatun to Fushun). With the outbreak of the Russo-Japanese War, the Japanese forces laid a light-track military line from Antung to Mukden which was completed by the end of 1904. This line was placed under the ownership of Japan after the War. With the exception of the section between Harbin and Changchun, all the above named lines were ceded to Japan, and for the management and operation of this system in South Manchuria, the South Manchuria Railway Company was established and began operations on April 1, 1907. Though there is no definite differentiation in management, this system is still known as Company lines and the rest as State Railways.

There is an interesting episode in connection with the establishment of the South Manchuria Railway. During this period the United States Government more than once tried to enter the Manchurian railway arena but failed. The late E. H. Harriman, an American railway king, was the first American who recognized the value of Manchurian railway enterprises, and he boldly planned, as early as 1905, to buy up both the South Manchuria Railway and the Chinese Eastern Railway and to organize them as links in his around-the-world transportation system. This plan failed at the last minute when Japan refused to give up the most valuable fruits of the War. Harriman and his New York financial group then tried during 1908-1909, through the aid of Williard Straight, the American Consul-General at Mukden, and in co-operation with British interests, to materialize the Chinchou-Aigun railway project, but this scheme came to an abrupt end with the untimely death in September, 1909, of Harriman, its motivating genius. After the failure of these proposals came Secretary Knox's famous neutralization proposal, under which all railways in Manchuria were to be purchased back by China with loans advanced by the interested Powers and then operated by an international syndicate. The proposal met with strong international opposition and failed to materialize.

At the time of its organization, the South Manchuria Railway Company was capitalized at Y200,000,000. It was a railway firm, but its actual work included a number of various industries having much to do with the economic development of Manchuria and Mongolia, though practically all were dependent upon railway activity in one form or another. True to the purpose for which it was established, the South Manchuria Railway has fulfilled its mission, the cultural and industrial development of Manchuria, and completed the construction of the two great feeder lines, the Changchun-Kirin and Ssupingkai-Taonan lines.

The Third Stage, 1925-1931.—The Third Stage was marked by the intensification of China's anti-foreign policy resulting from a feverish campaign to recover lost rights, which gained momentum during the Great War. Taking advantage of this anti-foreign movement sweeping through China, the Northeastern Régime of Manchuria made desperate efforts to recover railway rights, but finding this difficult, it decided to resort to a policy of driving out foreign interests by bringing pressure to bear upon foreign railways. For this purpose the militarist régime began construction of railways with its own capital to compete with foreign lines, its immediate objective being the encirclement of the South Manchuria Railway.

With the above object in view, the former régime organized the Northeastern Communications Committee, which drew up a 15-year plan for the establishment of a huge railway system, comprising 55 lines with a total length of 10,000 kilometers. Three trunk lines were projected under this plan for immediate construction. They were:

(1) East Trunk Line, connecting Mukden with Hailung, Kirin, Hailín, Ilan, Tungkiang and Suiyuan.

(2) West Trunk Line, connecting Hulutao with Tungliao, Taonan, Tsitsihar, Nonkiang and Heiho.

(3) South Trunk Line, connecting Hulutao with Chaoyang, Chihfeng, and Talun.

The régime also planned the development of Hulutao harbor as an outlet for the three trunk lines and signed a 6,000,000 U.S. dollars contract with the Netherlands Harbor Construction Company.

Under such circumstances it was only natural that Sino-Japanese rivalry was aggravated and finally resulted in the outbreak of the Manchurian Incident on September 18, 1931, and the subsequent creation of Manchoukuo.

The Fourth Stage, 1391 and After.—The Fourth Stage represents the period following the Manchurian Incident. Simultaneous with its foundation, the Manchoukuo Government declared that all railways hitherto under the supervision of the Northeastern Régime would be designated as state owned, and placed them under the management of the Department of Communications. After a series of deliberations, the railway policy of the Government was formulated upon the following basis:

In order to maintain peace and order and to carry out industrial development, the adjustment and development of transporation facilities, especially railways, are urgent requirements. At the present time, the railway system is very inadequate, and there are a number of small independent railway companies which render unified management inconvenient. Therefore, since it is difficult to unify these independent railways, to carry out rational management, and to expect highest economic and technical efficiency, it is considered most appropriate to entrust unification and management of railways and the carrying out of various projects to the South Manchuria Railway Company which has a long, commendable history of railway management in Manchuria behind it.

This arrangement will also be beneficial to both the Manchoukuo Government and the South Manchuria Railway Company since it will facilitate the liquidation of the enormous liabilities of the Manchoukuo Government to the South Manchuria Railway Company.

Thus, a contract was drawn up between the South Manchuria Railway and the Manchoukuo Government on February 9, 1933, by virtue of which the former was entrusted with the management of all State Railways, the supervision of river navigation on the Sungari, and various subordinate enterprises. Consequently, the South Manchuria Railway created the General Directorate of Railways (at Mukden) to manage the various projects and to meet the demands of the new situation. The lines transferred to the General Directorate of Railways numbered 17 in all, approximately 3,000 kilometers in length. Only the Russian North Manchuria Railway continued under joint Manchoukuo-Soviet management, but became a part of the State Railways of Manchoukuo in March, 1935. Prior to this event, in September, 1933, the North Chosen Railway (Chosen Government Railways) was entrusted to the South Manchuria Railway Company.

With these new arrangements, the entire railway system of Manchoukuo was unified for the first time under the management of the South Manchuria Railway Company.

The total length of railways in Manchoukuo at the end of 1937, was roughly 9,600 kilometers, including State Railways, South Manchuria Railway lines and private railways. Since the birth of Manchoukuo, about 3,500 kilometers of new railways have been built, and many more are projected in all parts of the country. Ever since it was entrusted with its great work, the General Directorate of Railways is producing satisfactory results in the general management of all railways in Manchuria and North Chosen, ports and harbors, other transportation enterprises and their subsidiary undertakings, and in the control and supervision of all matters concerning the construction of various projects.

According to statistics released by the General Directorate of Railways, the index number for passenger traffic increased to 188 during the first half-year of 1938 (basic year-1933) and income from this source to 191. Freight traffic increased to 200 and income therefrom to 170 during the same half-year period.

The exploitation of natural resources in Manchuria is progressing at a rapid rate parallel with the construction of new railways, but at the time the construction of new lines was begun after the Manchurian Incident, there was no way of determining accurately the amount of mineral deposits and no definite plan for the industrial development of undeveloped regions could be formulated. In consequence, the volume of railway traffic could not be estimated and it was not unnatural that future development was regarded with some pessimism. The General Directate of Railways, therefore, assembled in 1934, a force of about fifty transportation and industrial experts to form a State Railways Research Committee, and entrusted this body with investigations in connection with the formulation of a ten-year industrial development and railway operation plan. The results of this survey contributed much toward the adoption of plans for the development of resources which are necessary for balancing incomes and expenditures of railway enterprises in the future, and at the same time were used as the basic material for the drafting of the famous Five-Year Industrial Development Plan of Manchoukuo.

New lines built in undeveloped regions have produced admirable results much sooner than expected and new commodities for transportation have appeared in spite of the not too pleasant forecast that had been made.

As an example, the belief that the regions along the Peian-Heiho line were entirely unsuitable for agriculture due to the exceptionally severe winter was proven false, and, on the contrary, it was found that these regions were extremely suitable for the cultivation of soya beans, wheat and other agricultural products. Considerable quantities of these products have already been marketed. Furthermore, Taheiho, the northern extremity of this line, has been transformed overnight into a prosperons shipping point for timber floated down the Heiho River : large quantities of wheat produced in the vicinity are now being shipped on the Ningnien-Mergen line ; the regions bordering the Jehol-Chihfeng line, which had been previously regarded as a desert, are now shipping soya beans and kaoliang to North China markets ; and the brisk traffic in agricultural products from East Manchuria and the tremendous timber traffic that has been the result of the laying of new timber transport lines and which has created a bustling atmosphere at each station, are but a few examples of the changes that were brought about by the construction of these new lines.

Railway transportation in Manchuria is now entering a new era. The past forty years' history was a continual process of clearing the ground, eliminating political, geographical, racial and other difficulties that obstructed the economic and industrial development of Manchuria. The real progressive stage has just begun, and there is no doubt that an unprecedented advancement will be recorded in the ensuing years. Though international diplomatic, economic and military rivalries hindered progress in the earlier stages of Manchuria's railway history, we must make due acknowledgment of the valuable contributions made by Western interests and technical experience before the coming of the Japanese to whom the greatest credit must be given for making Manchuria's railways what they are to-day.

Manchoukuo's Electric Power Program

(Continued from page 24)

On the other hand, a record of the precipitation has been kept in Hsinking from 1909 and at Chukochin in Korea from 1915. Thus, data covering a period of approximately 25 years were available with regard to rainfall. An integrated study of the findings of these surveys has produced the following general picture :

Maximum Flood Time Flow ..	10,000 cubic meters per second
Maximum flood time flow planned for	15,000 cubic meters per second
Minimum Dry Season Flow ..	40 cubic meters per second
Average Flow	500 cubic meters per second

For reference, the results of the Manchoukuo Government surveys during the last five years of the river flow at the site of the dam are given below :

	Total Annual Flow Hundred Million Cubic Meters	*Average Flow Cubic Meters Per Second*
1934	159.7	506
1935	153.9	488
1936	167.8	536
1937	163.8	519
1938	172.0	545
Average	163.5	519

On the basis of this data, the volume of water available for use per second was set at 500 cubic meters and the following outline program formulated.

RESERVOIR

Area 545 square kilometers
Reference—Lake Biwa, 675 square kilometers :
Kasumigaura, 188 square kilometers.
—The Boulder Dam Reservoir in the United States, 590 square kilometers (Other reports state less than 300 square kilometers, exact figure unknown).
Length of Reservoir 170 kilometers
Reference—Boulder Dam, 185 kilometers, none others to be found that form any comparison.
Volume of Water Stored 11,000,000,000 cubic meters
Reference—Boulder Dam, 37,600,000,000 cubic meters.
—Fort Deck Dam in the United States, 24,000,000,000 cubic meters. The construction work on this dam is scheduled to be completed in the near future. There are no other dams that surpass the Sungari in this respect.
Number of Houses Submerged 8,000.

DAM

Style : Concrete built to withstand the Pressure of the dammed water by the sheer weight of the concrete mass.
Length : 1,100 meters.
Reference—The Saguli Dam in India, 4,846 meters, height 48 meters, is the largest in the world. As a concrete dam, the Sungari is the world's 12th largest.
Height : 81 meters
Reference—The Tokogawakomaki Dam, 76 meters high, is the highest in Japan.—There are 35 dams over 80 meters in the world.
Volume of Concrete 1,900,000 cubic meters
Reference—Boulder Dam 2,500,000 cubic meters of concrete used.
—Salt Spring Dam in the United States, 2,300,000 cubic meters.
—The Cauvery Mettur Dam in India, 1,530,000 cubic meters.
—Amount of cement used in Sungari Dam, 450,000 tons.

The Sungari dam is scheduled to be completed by the end of 1941, and the generation of electric power to be begun immediately. The pouring of the concrete was begun in July of this year, and already parts of the dam have been constructed to the height of 10 meters above bedrock. The rate of construction is progressing as scheduled.

River Improvement, Irrigation

This project is an integral part of the basic river improvement program for the Sungari River. Directly, flood damages to 160,000 cho of fields in the lower stretches of the river will be completely eliminated. Of this, the development of 72,000 cho of land suitable for paddy fields becomes possible, and the immigration of 10,000 farming households is anticipated.

In addition, standardization of the flow of the river, and the fixation of the course of the flow itself, is expected to contribute immensely to river navigation on the Sungari.

On the other hand, the creation of a vast reservoir is expected to be of immense benefit to river transportation, the fishing industry and to the tourist trade.

Synthetic Rubber

By *A. E. WILLIAMS*, F.C.S.

(The Engineer)

UNLIKE the old lady who, on visiting the Zoo for the first time, denied that such things could exist, we are perfectly correct in saying that there is no such thing as synthetic rubber, although the so-called synthetic rubbers are often as good as, and frequently better than, natural rubber for specific purposes. Chemists have for many years been producing exact imitations of various natural substances—notably dyes, perfumes, etc.—having the same chemical composition and properties as the natural material. These are accordingly true synthetic substances. Because of this strict adherence of first accurately analysing the natural substance and then building it up artificially from its various components, the development of a satisfactory rubber substitute was considerably delayed, for the complete chemical structure of rubber could not be ascertained. As far back as 1860 Williams (" Proceedings," Roy. Soc., 616) isolated a constituent from rubber called isoprene. Later, Tilden (*Chemical News*, 1891, 265) established the fact that isoprene could be turned into a material resembling rubber by treating it with an acid, or by merely letting it stand for a period, and he also produced isoprene from materials other than rubber, so that his work may be regarded as the foundation stone of the synthetic rubber industry. However, in Tilden's time the demand for rubber was not so great as it is now, and his work was not commercially exploited to any considerable extent. During the war of 1914-18 the Germans manufactured several thousand tons of synthetic rubber, of poor quality; but it is in the last decade that real advancement has been made in the industry, and in 1939 nearly 200,000 tons of synthetic rubber was produced by the United States, Great Britain, Russia and Germany. Its manufacture here creates employment and saves the shipping of natural rubber to these shores; while the raw materials for its manufacture—coal and limestone—are available in unlimited quantities in this country.

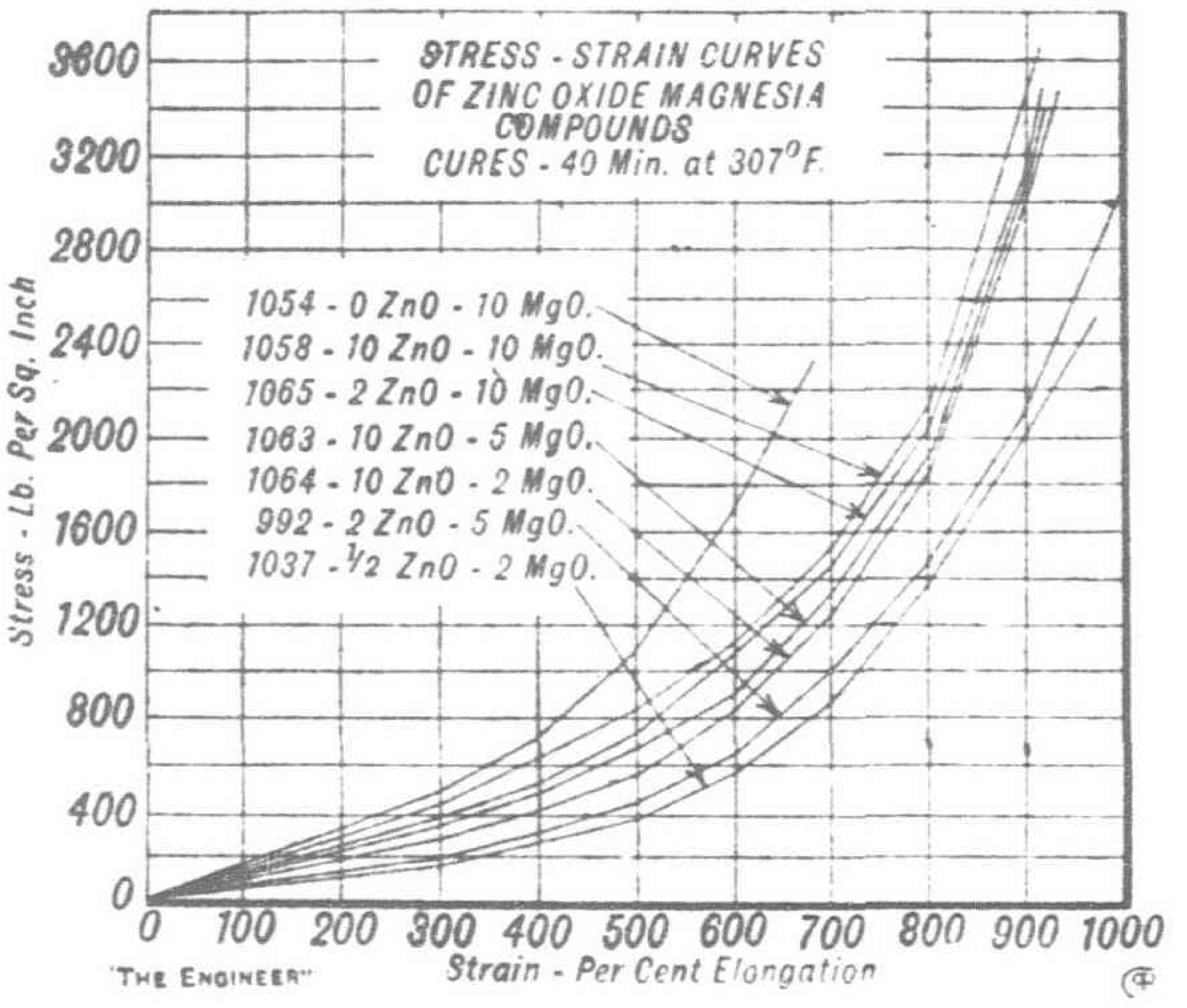


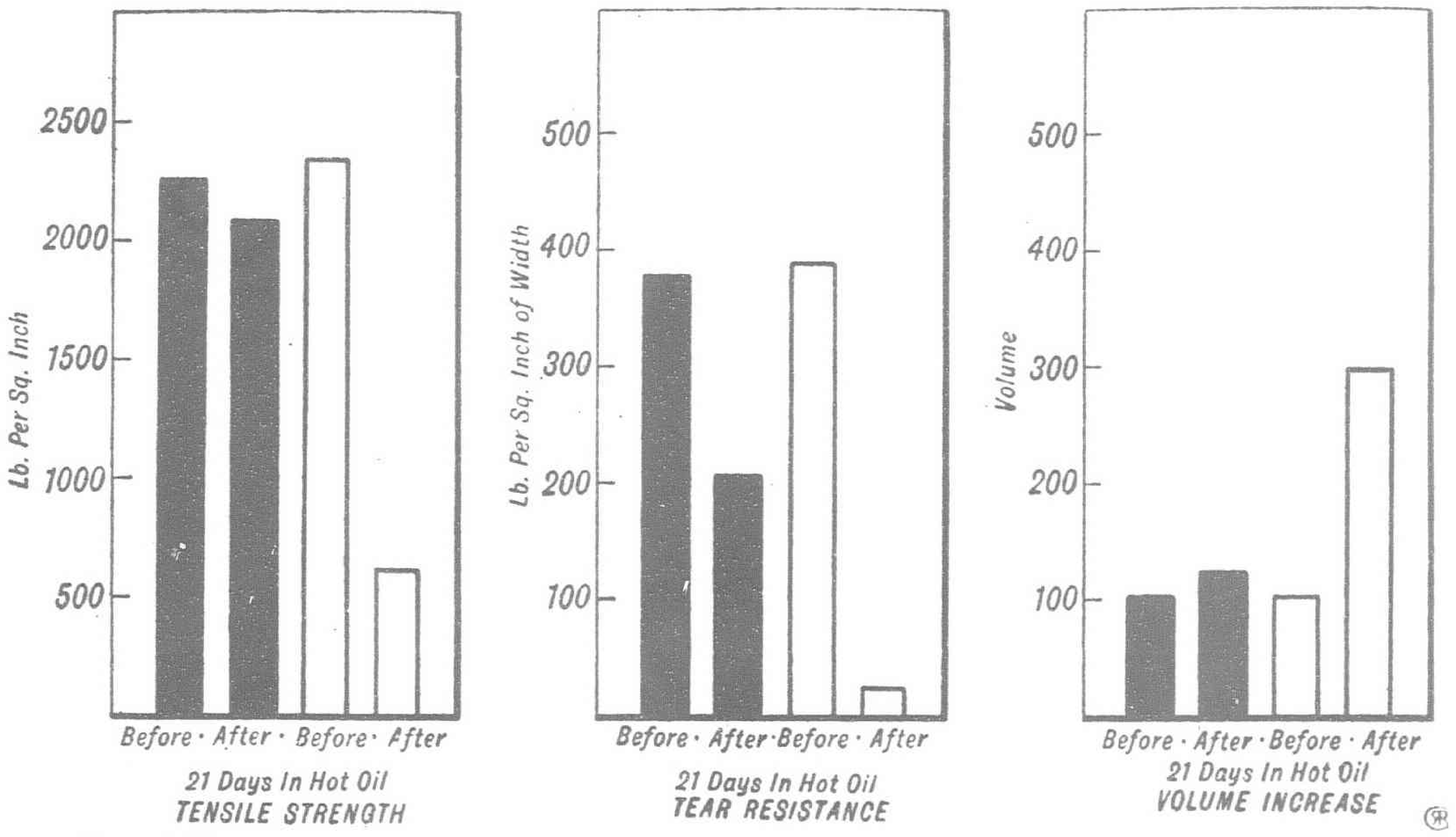
Fig. 1

Buna Rubber

The formation of synthetic rubber is based on a process of ploymerization—that is, a process in which a material is formed having the same percentage composition as the original material, but a different molecular weight. For example, acetylene gas has the formula C_2H_2 and a molecular weight of 26; benzine, C_6H_6—which can be produced directly from acetylene—has the same percentage composition as the latter, but entirely different properties, and its molecular weight is three times that of acetylene. By making use of a chemical catalyst it is possible to produce an entirely different polymerization product. Much research work has had to be done before a material simulating rubber could be produced, and has involved an intimate study of the manner in which the atoms are linked together to make up a molecule of synthetic rubber. The latter could only be formed after polymerization had been carried to such an extent that the final product had a molecular weight many times greater than the original material. In 1927 the I.G. Farbenindustrie, in Germany, instituted research work for the making of synthetic rubber, and ultimately produced a product known as Buna rubber, the name being derived from the raw materials used, butadiene and sodium (chemical symbol Na). Apparently, this comparatively slow method of producing synthetic rubber is still in use in Russia, but in Germany a quicker process has been introduced. This consists of first emulsifying the raw materials by adding water and then subjecting them to a specific temperature and pressure which produces a material closely resembling rubber latex, and the synthetic material is treated in a similar manner from this stage. In making synthetic rubber from butadiene and sodium on a factory scale, an upright cylindrical autoclave—jacketed for steam heating and brine cooling—is used. Inside this vessel an enamelled sheet iron drum for containing the raw materials is placed. The sodium catalyst is first attached to a piece of iron wire gauze—the surface of which has been cleaned by immersion in acid—by dipping the gauze into metallic sodium in the fused state. This layer of sodium attached to the gauze is then protected by a layer of paraffin. The gauze and sodium catalyst is next suspended in the drum and a quantity of butadiene added. The vessel is then closed and steam put through the jacket to bring the temperature up to 30 deg. cent. At this temperature the process of polymerization commences, and as the reaction is exothermic, the temperature rises to about 65 deg. cent. without aid from the steam jacket. In some cases it is necessary to circulate chilled brine through the jacket to prevent an undue rise in temperature. The polymerization occupies a period of four to five days, during which the vapor pressure inside the vessel is kept around 112 lb. per square inch, by cooling or heating the jacket as required. By taking and testing a sample of the vapor from the vessel towards the end of the reaction—denoted by a spontaneous drop in temperature—the quality of the product can be judged. Early in 1940, the Standard Oil Company in the United States acquired the rights from the Germans to erect a factory for the manufacture of Buna rubber, which factory is expected to be producing before the end of the year.

Neoprene

The most commercially successful synthetic rubber up to date goes under the name of neoprene. First developed by the du Pont Company, of the U.S.A. about seven years ago, it is now manufactured also in by Imperial Chemical Industries, Ltd. The starting point for neoprene manufacture is calcium carbide—produced from coal and limestone—which gives acetylene gas by adding water. The acetylene is polymerized to mono-vinyl acetylene, and this, in turn, is converted to chloroprene by treatment with hydrochloric acid. Chloroprene is a thin liquid when freshly prepared, but it cannot normally be kept in the liquid state and it rapidly changes to neoprene, a plastic solid, closely resembling natural rubber. The intermediate product mono-vinyl acetylene, $CH\ C\ CH\ CH_2$, it will be noted, has the same percentage composition as acetylene C_2H_2, but an entirely different chemical structure. In chloroprene, $H_2C\ CCl\ CH\ CH_2$, the same percentage composition is maintained, but the elements of hydrochloric acid, HCl, have been added. The idea of attempting to make a synthetic rubber containing chlorine would have been ridiculed by the earlier rubber chemists on the ground that natural rubber contains no chlorine; but as a matter of fact the chlorine enables polymerization to take place more rapidly, and it lowers the materials cost without detracting from the usefulness of the finished product. Credit for the successful establishment of a synthetic rubber industry must go to engineers as much as to chemists, for without the skill of the engineers in designing and constructing the plant the chemists' processes would never have got beyond the laboratory stage. The plant has to be constructed of special corrosion-resisting alloys and designed to handle in bulk products of very low boiling point without excessive losses through evaporation.



"THE ENGINEER"

Fig. 2.—Comparison of neoprene and neutral rubber

Synthetic Rubber Technology

When the pioneers of natural rubber developed their business, progress was very slow because the necessary working data and machines had to be evolved. Not so with the synthetic product, for this corresponds broadly with the natural rubber latex, and an established technique in the shape of mixing and compounding, with the necessary machinery, was already at hand, enabling the commercial exploitation of synthetic rubber to be rapidly advanced. In common with natural rubber, rubbers of the Buna class, i.e., those made from butadiene, require sulphur as a vulcanizing agent; but those produced from chloroprene—the neoprene products—do not of necessity require sulphur to transform them from the plastic, non-elastic state to the non-plastic, elastic condition of ordinary rubber. An average natural rubber mixture contains zinc oxide, sulphur, and an accelerating agent, while an average neoprene mixture would contain zinc oxide, magnesia, and wood rosin or similar chemicals. In the synthetic product the zinc oxide functions in a similar manner to the sulphur and accelerator in the natural rubber, but to retard the action of the zinc oxide in the synthetic material magnesia is added. As a reinforcing agent use is made of various grades of carbon black the grade depending on the desired properties in the rubber. All such chemical agents added to neoprene before vulcanizing are for the purpose of rendering it more suitable for commercial use and to increase its strength, elasticity, and durability. A test showing stress-strain data of unvulcanized neoprene that had been calendered to a smooth sheet, obtained on a standard Scott tensile machine at 82 deg. fah., gave results as follows:—

Stress at elongation of	*Pounds per sq. in.*
200 per cent	200
300 ,, ,,	275
400 ,, ,,	400
500 ,, ,,	550
600 ,, ,,	725
700 ,, ,,	900
800 ,, ,,	1,100
900 ,, ,,	1,325
Break:	
950 per cent	1,450

The stress-strain curves in Fig. 1 illustrate the effect of varying the proportion of zinc oxide (ZnO) and magnesia (MgO) in compounding neoprene; in compound No. 1054 no zinc oxide was used. In addition to the varying proportions of ZnO and MgO shown each compound consisted of a standard mixture of 100 parts neoprene, five wood rosin, two neozone, and one of sulphur. These compounds were all "cured" at 307 deg. fah. for forty minutes. Note the poor physical quality of the No. 1054, in which magnesia is used in the absence of zinc oxide. The neozone constituent serves as an anti-oxidant which enhances the ageing properties and heat resistance, while the presence of wood rosin is practically essential to facilitate the reactions of the sulphur and metallic oxides. The small percentage of sulphur serves as an accelerator during vulcanization if the metallic oxides are present, and it also increases the modulus, tensile strength, and toughness of the rubber. To give anything like a complete account of the compounding of synthetic rubber would require too much space, but sufficient has been written to indicate how the properties of the vulcanized product can be varied by incorporating different chemicals in various proportions. Generally speaking, the initial cost of goods manufactured from synthetic rubber is higher than that for natural rubber, but in many directions the synthetic product proves to be much cheaper in the long run, which is made clear by the following notes on the applications of the synthetic product to the engineering trades.

Rubber Belting

Transmission belting composed of rubberized fabric has an advantage over belting of other materials, for it gives improved grip and lessens permanent stretch during use, while the rubber acts as a binder, holding the plies of fabric together and affording protection from steam and other vapors. But natural rubber as a belting component has its limitations; its enemies are temperatures higher than about 140 deg. fah., acids and oil, all three of which are often found in industrial plants. Synthetic rubber possesses mechanical properties equal to natural rubber, and, unlike the latter, it is more resistant to heat, acids, and oil. In tests carried out with neoprene rubber against natural rubber, the following data was obtained:—

Immersed in	*Temperature, deg. fah.*	*Period of immersion required to perish the sample, in days*	
		Rubber	*Neoprene*
Water	212	28	182
Hydrochloric acid (conc.)	158	3	182
Sulphuric acid (50 per cent strength)	158	3	56
Mineral oil	158	25	Over 400

In practice neoprene-bound fabric belting has given very satisfactory results. For example, in one factory in which an atmosphere of lithopone dust and steam is constantly present, a belt of this type was tried out. The belt was a 4-in., four-ply, connecting a dryer and pump countershaft, transmitting 3 h.p. at 240 r.p.m., at a temperature of 140 deg fah., the drive being 16-ft. by 5-in. to 16-ft. by 5-in. pulleys—open-horizontal—16-ft. centers. After twenty months of constant service, night and day, the belt was still in good condition, whereas a similar belt containing natural rubber failed after only nine months' service in the same conditions. In numerous other instances, in which acids, vapors, or oils are present, the synthetic product has given a much longer life than the natural rubber. The round belts often employed for driving small machines from a main power shaft give almost as much trouble as the bigger flat type. Attempts have been made recently to improve these by insulating a round cord belt with rubber of high abrasion resistance, the rubber improving the grip and lowering the amount of stretch. These rubberized belts are very satisfactory under normal conditions, apart from their short life, and this is owing chiefly to contamination with lubricating oil which quickly perishes natural rubber. When the latter is replaced with neoprene rubber, the good qualities of a rubberized belt are maintained, and the oil hazard is simultaneously overcome. Neoprene-treated transmission belts are now made in, and a sample of this belting was tested a short time ago by an independent authority. The following figures were obtained :—Ply-to-ply adhesion, 30 lb. per square inch ; tensile strength of belt, 11,100 lb. per square inch ; elongation at break, 6.6 per cent.

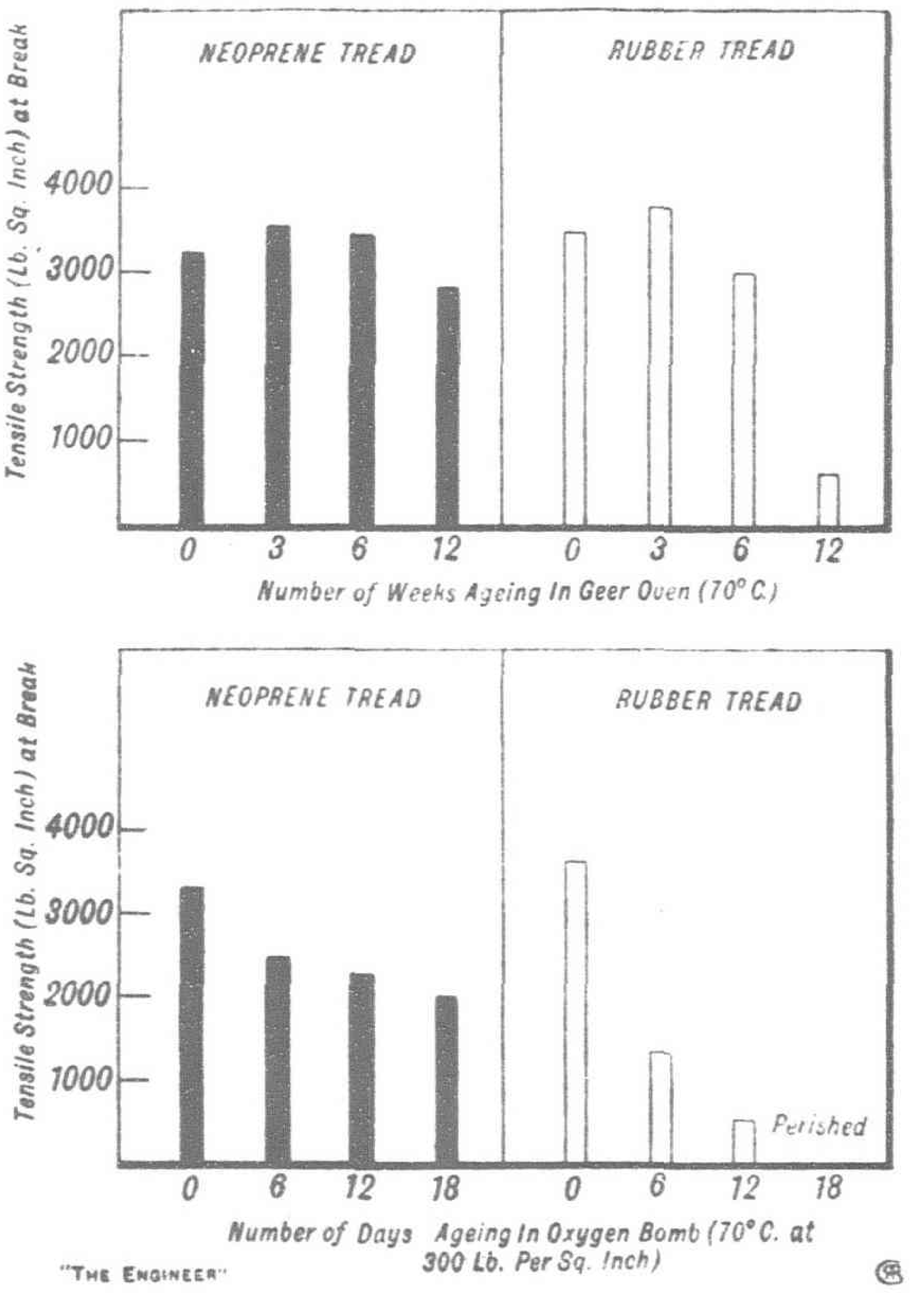
Conveyor belting of the non-metal type has provided another useful outlet for synthetic rubber. The primary essentials for such a belt are flexibility and the necessary resilience to withstand the impact of the product carried without damaging either belt or product. Here, again, rubberized fabric has the same advantages as in transmission belts, but the utility of the rubberized fabric conveyor belt is limited, because such belts are not suitable for carrying either hot, acidic, or oily materials. The introduction of synthetic rubber, however, has solved the problem, and in one case a neoprene-treated belt, used for conveying hot asbestos, has six times the life of a rubberized belt. For the carrying of hot lime and other chemicals the synthetic material has proved itself to be more efficient than natural rubber.

Oil Resistance

In order to prove conclusively the great resistance of neoprene to oil, compared with natural rubber, exhaustive tests have been carried out. Samples were totally immersed for twenty-one days in a standard grade of mineral oil, maintained at a temperature of 212 deg. fah., the natural rubber sample being of a special oil-resisting quality. Before testing the two rubbers had the following physical properties :—

	Neoprene	*Rubber*
Tensile strength at break (pounds per sq. in.) . .	2,275	2,350
Elongation at break, per cent	370	290
Hardness (deg. Shore Durometer)	73	72
Tear resistance, pounds per sq. in. of width . .	372	385

The bar graphs in Fig. 2 show the properties of the two rubbers after twenty-one days immersion, during which the rubber swelling amounted to about 190 per cent volume increase, against 15 per cent for neoprene. The tear resistance of the rubber was reduced to five per cent, rendering it useless for practical purposes, while that of the neoprene was lowered to about 50 per cent, which means it was still good for many purposes. In tensile strength the rubber fell to about 25 per cent of its original value, but neoprene still maintained 93 per cent. These tests show that neoprene is serviceable under conditions wherein rubber is irretrievably perished.



"THE ENGINEER"

Fig. 3.—Comparison of neoprene and rubber tyre treads

Bonding Metal

For many different purposes it is advantageous to bond rubber to metal, for example, in lining chemical vessels and pipes, making flexible couplings, engine mountings, vibration dampers, etc. The time-honored method of doing this with natural rubber is to brass-plate the metal surface and cure the rubber on to this, a procedure which means metal spraying or plating apparatus, which may not always be at hand. With synthetic rubber, however, plating and other cumbrous processes may be abolished and a joint obtained, equal in strength to rubber, on any of the more common metals, such as iron, steel, and stainless steel, aluminium and its alloys, zincs, lead and magnesium alloys. In using neoprene for bonding the metal surface is first cleaned by acid pickling, scouring, or sand blasting. A mixture of 30 parts by weight of Alloprene (made by I.C.I., Ltd.), and 70 parts by weight of xylene is then painted on to the metal surface, three successive coats being applied allowing each to dry separately. Before the final coat is perfectly dry, calendered neoprene is laid on, and rolled into contact with the coating mixture. The neoprene is then vulcanized, either in a press, if convenient, or by applying steam to the surface of the neoprene, an average vulcanizing temperature being 141 deg. cent. When cold the bond is quite stable, and remains so even at temperatures of 120 deg. cent, and often considerably higher.

In Printing

In more leisurely days, when all type was set by hand, printers' rollers consisted of a basis of treacle and glue heated together and cast in a mould to the required size. Most small printing machines still have rollers of treacle and glue, but these materials would not stand up to the hard wear involved in the large modern rotary presses, and these may conveniently work with rollers of rubber. The printer uses rubber rollers to carry a thin film of ink on to the metal printing surface—usually type or blocks—and also for supporting and moving the paper while in the machine. The soft surface, the "blanket," pressing the paper against the type is often made up of a special felt with a rubber facing, while some types of blocks and stereos are frequently of rubber instead of metal. Printer's ink, however, with its content of oil, volatile solvent, and driers acts upon rubber and destroys it in a comparatively short time, in spite of the fact that inkmakers have long been co-operating with rubber manufacturers in an effort to make the ink suit the rubber or vice versa. But the ink manufacturer must include oil, solvent, and driers, and in colored lithographic inks manganese—the deadly enemy of rubber—is invariably present, whilst the rubber maker cannot alter the natural rubber basis of his goods. This difficulty has led some of the rubber roller makers to try out the synthetic product, and, in addition, tests have been conducted by I.C.I., Ltd., with most known varieties of printing ink. These tests show that neoprene rubber is more resistant to the action of the inks than is natural rubber ; in fact, neoprene remains entirely unaffected long after the natural rubber has completely perished. An example is afforded by a neoprene roller, placed four years ago in a neswpaper press, being in new condition at the present time after constant daily use. As neoprene is readily machinable, the rollers made from it can be easily trued up when necessary, and, like the natural rubber and also the composition rollers, many types of neoprene rollers can be produced to suit lithographic, offset, and ordinary printing. From the engraver's viewpoint, neoprene is equal to rubber, for dies cut clean and hold their edges, and it is not subject to crumbling or nicking under working conditions. On rotary presses a neoprene-faced blanket has a life at least eight times as long as a rubber-faced blanket.

Fire Resistance

In recent years natural rubber has been mixed and compounded with certain chemicals to give it non-inflammable properties, but the rubber has to be heavily loaded with such chemical agents before an appreciable degree of fire resistance is obtained, and this usually results in poor ageing properties, or, in other words, a short life for the rubber. For this reason, non-inflammable natural rubber has hitherto met with only very limited success, particularly in the sphere where it is most required—electric cable coverings. Unlike natural rubber, which burns fiercely when once ignited, a synthetic product like neoprene is in itself non-inflammable, and when compounded this property is retained to a much higher degree than is the case with natural rubber. Several of the companies in the Cable Makers' Association now manufacture fire-resisting insulated cables containing neoprene. The cables are very similar to the normal vulcanized rubber covered (V.I.R.) variety, and are suitable for most wiring jobs. The makers point out that these cables have a fire-resisting dielectric, and although the dielectric is destroyed by the application of great heat the cables do not spread a fire by carrying a flame and do not continue to smoulder after the extraneous source of heat has been removed. Details of the make up of these cables are contained in B.P. 499,908. It is customary to use natural rubber or other material for the interior cover of the metal conductor and to cover this with a layer of neoprene, the latter forming the outer covering in each case. This is the practice because neoprene has less insulation value than natural rubber, and to use neoprene entirely as a conductor protection would be too costly, since neoprene is dearer than natural rubber. Synthetic rubber has found an opportunity in cable making because other systems of protection have many disadvantages. A popular method of protecting rubber-covered cables is to lay them in steel conduit tubing; but the conduit system has the disadvantage of being a costly job, and it renders inspection of the cables for faults difficult. Variations in temperature in conduit systems lead to air and vapors being drawn into the tubes. Such vapors from industrial atmospheres may be of a corrosive nature, and when condensed within the tubes remain there to attack both the cable and the metal interior of the tube. An alternative to conduit tubes is lead-covered cable, but with this it is just as difficult to detect faults either in the conductor or in the insulation. Both lead covering and steel conduit protection is liable to damage by vibration or corrosion. Some types of cables have metallic screenings or braidings, and also incorporate fire-resisting compounds; but these are not always satisfactory because in case of fire the interior rubber becomes hot and its inflammable gaseous products of decomposition penetrate the outer covering and ignite on the outside, thus carrying fire along the cable.

Other uses for neoprene include its use in fabric and moulded diaphragms for fuel pumps, regulators, valves, etc., especially where working conditions are severe. Because of its resistance to heat and oil it replaces braid and lacquer jackets on automobile ignition cables. Hose for carrying petrol, oil, etc., may with advantage be lined with neoprene, as also may air hose used where hot oil is injected into the air current for tool lubrication. In aircraft strips of the material are used in sealing the riveted seams of aeroplane hulls on account of its good resistance to the atmosphere and sunlight. British aero-engine manufacturers use neoprene packing in a pipe coupling on the high-pressure cooling system, while in the "Atlantic Clipper," the machine which made the first Atlantic flight for Pan American Airways, several neoprene parts were used, including a moulded magneto gear in its Pratt and Whitney engines. In refrigerating apparatus compressor seals of neoprene resist the deteriorating effect of the refrigerant. Sometimes neoprene replaces leather instead of natural rubber. For example, a press—using oil as the hydraulic medium—with a working pressure of 1,500 lb. per square inch on the 10-in. ram, was previously fitted with leather sealing rings, having a working life up to two weeks, and allowing oil leakage up to five gallons per week. A neoprene ring was fitted, giving two years' service without signs of wear, and at the same time lowering the amount of oil passing the ring. For the making of gaskets and sealing rings for purposes other than hydraulic presses the synthetic material may be incorporated with cork, asbestos, or other suitable fillers, as in gaskets for automobiles, in which, mixed with cork, it has replaced a glue-glycerine composition as a binder for the cork.

Physical Properties

The specific gravity of neoprene is 1.25, and when compounded this figure may be anything from 1.4 to 3.0, depending on the nature of the compounding materials. Its tensile strength is similar to that of rubber, being up to about 4,000 lb. per square inch, while its resistance to abrasion is normally equal to rubber, and superior under conditions where heat, oil, or chemicals are in evidence. In a test on diffusion of gases through neoprene and rubber, a film of rubber passed seven times as much hydrogen as did neoprene. From the electrical standpoint the synthetic material is inferior to rubber in power factor and volume resistivity, but slightly superior in breakdown strength. Neoprene has elastic properties similar to rubber, and its compounds can be made to show an elongation at break of 1,000 per cent. When uncompounded it shows 28 per cent more thermal conductivity than rubber in a similar condition, but when compounded it may be regarded as a heat insulator. Rubber quickly perishes with prolonged exposure to sunlight or to ozone; the synthetic material, on the contrary, is very resistant to these, and this property is of some importance in the neighborhood of electrical machinery or of conductors carrying high-tension current where ozone in quantity may be fortuitously produced. At temperatures up to about 300 deg. fah. neoprene rubbers have a much greater resistivity to heat than natural rubber; for the latter becomes soft and loses it strength, while the former becomes harder and tougher. The ageing of rubber is brought about by both physical and chemical changes, and in the constant search for new and better rubber compounds the action of the chemicals in the mix on the properties and life of the rubber must be ascertained as quickly as possible. It is therefore impracticable, for example, to put a synthetic rubber tyre on a car and wait several years for it to wear out in order to find out its span of life. With regard to natural rubber, an established technique enables a fairly accurate judgment to be given as to probable life from what are termed accelerated ageing tests, and although a synthetic product like neoprene has only been in use a few years, sufficient data have been collected to enable similar judgment to be made. In the rubber industry the two main methods for testing probable life consist of (1) keeping a sample at a temperature of 70 deg. cent in a "Geer" oven, in which the rubber is in contact with warm air; and (2) keeping a sample at 70 deg. cent, in an "oxygen bomb"—really a steel autoclave containing oxygen at a pressure of 300 lb. per square inch. The bar graphs in Fig. 3 show the effect on a sample of natural rubber tyre tread and a sample of neoprene tyre tread respectively. After twelve weeks in the Geer oven the rubber shows 17 per cent of its original strength, against 88 per cent for neoprene, and twelve days in the oxygen bomb is sufficient to reduce the rubber to 14 per cent of its initial strength, against 70 per cent for neoprene. Such data enable a remarkably accurate forecast to be made as to the life of tyres in actual service.

Flexible Ebonite

As nearly everyone knows, ebonite or vulcanite is a hard, brittle material produced by vulcanizing natural rubber with a large excess of sulphur. Synthetic rubbers of the Buna class also give a hard ebonite, superior to natural rubber, on vulcanizing with a similar proportion of sulphur. If the same excess of sulphur is added to neoprene it will not produce a hard material on vulcanization; but if about ten per cent of neoprene is added to a natural rubber mix, with its excess of sulphur, before vulcanizing, the resultant vulcanized product is flexible, and is known as flexible ebonite. It is as strong and flexible as celluloid, is shockproof, and has a higher resistance to oils, solvents, acids, etc., than normal neoprene products. Because of this the material is finding many different applications in industry, particularly in the chemical trades, and especially where high mechanical strength is not essential. Flexible ebonite is used in making so-called unbreakable fountain pens, and in the chemical industry for tank and pipe linings, pipe lines themselves, and various pieces of apparatus to contain acids. The material can be distorted to quite an appreciable degree without damage or breaking, and may be machined, drilled, etc. Let us hope this property of distortion will not lead hitherto good pipe fitters to become less accurate in their fitting and be content to force the material into position before bolting up. In the plating industry flexible ebonite is becoming popular for use in the form of frames upon which the articles to be plated are suspended. Such frames have to be good insulators of electricity and also resist the action of plating chemicals, such as hot acids and alkalis, etc. They must also present a smooth surface to facilitate cleaning, for constant rinsing is essential to prevent the frames carrying a chemical from one tank to another. For plating small articles which have to be wired into frames, the flexible ebonite is so constructed that the danger of metal being deposited on the frame is eliminated. A typical plating frame is oblong, suspended vertically, and has the flexible ebonite insulation carried round the bottom and two vertical sides of the frame. In making the latter, the required length of extruded flexible ebonite tubing, of $\frac{3}{8}$-in. external diameter and $\frac{5}{64}$-in. internal diameter, is slipped over a length of $\frac{1}{8}$-in. brass rod. The right-angle bends to form the frame are then produced by immersing the straight length in warm water, which enables the ebonite to be bent without any danger of stress. The top horizontal bar, to which the plating current is applied, is

(Continued on page 34)

Shanghai's Cotton Industry in 1940

By T. T. SCHMIDT

During the first six months of 1940, Shanghai cotton mills were very busy and enjoyed very good business because of large demand of cotton yarn and cotton cloth both in the local market, the interior provinces of China as well as the South Sea Islands. Prices of cotton yarn and cotton cloth increased steadily and large quantities of cotton goods were exported from the city. However, following the heavy slump of the Chinese dollar in the local exchange market in the early part of May and the general depression of the commodity market following the occupation of the Low Countries in Europe by the German troops, the cotton mills were forced to curtail their operations. The business condition of the cotton mills suffered more, when the Yunnan-Burma Highway was closed in July, cutting off the only route for the export of cotton yarn and cotton cloth to Free China. Since then, the Japanese cotton mills curtailed their operations by 50 to 60 per cent, the British mills by 30 to 40 per cent and the Chinese by 10 to 20 per cent. As a whole, it must be said that the business condition in 1940 was far better than 1938 but not as good as 1939.

By the end of 1940, 64 cotton mills were operating in Shanghai as against 60 in December, 1939. These 64 mills operated a total of 2,170,000 spindles as against 2,123,862 for the corresponding period of 1939. As to weaving machines, the 64 mills operated 26,000, showing very little change when compared with the previous year. Of the 2,170,000 spindles, 600,000 spindles were operated by the Chinese mills, 1,330,000 spindles by the Japanese mills and 240,000 by the British mills. As to the total of 26,000 weaving machines, 4,000 were operated by the Chinese mills, 18,000 by the Japanese mills and 3,600 by the British mills. The following table gives the comparative conditions of the number of spindles and weaving mills in 1940 and 1939 :—

	Number of Mills		*Number of Spindles*		*Number of Weaving Machines*	
	1939	*1940*	*1939*	*1940*	*1939*	*1940*
Chinese ..	19	21	562,254	600,000	3,735	4,000
Japanese ..	37	38	1,327,632	1,330,000	18,814	18,400
British ..	4	5	233,976	240,000	3,616	3,600
Total ..	60	64	2,123,862	2,170,000	26,165	26,000

Prior to the outbreak of hostilities in 1936 the cotton mills of Shanghai produced a total of 910,415 bales of cotton yarn. In 1937, total production of cotton yarn was 961,984 bales. However, because of the war, the total production in 1938 dropped to 753,441 bales. In 1939, total production increased to 1,120,356 bales, because of the exceeding good business enjoyed by the local mills, following the outbreak of hostilities in Europe when new markets were found in the South Sea islands. Production in 1940 was estimated to be 986,000 bales. The following table gives the production of cotton yarn by the Chinese, Japanese and British cotton mills in the past four years :—

	Chinese Mills	*Japanese Mills*	*British Mills*	*Total*
1936	541,999	330,179	38,237	910,415
1937	686,423	246,884	28,677	961,984
1938	191,044	525,465	36,932	753,441
1939	369,444	694,632	56,280	1,120,356

The following table giving the total consumption of cotton, total production of cotton yarn and cotton cloth will give a general idea about the business conditions of the cotton mills in the different months of 1940 :—

	Consumption of Cotton (piculs)	*Production of Yarn (bales)*	*Production of Cloth (pieces)*
Monthly Average, 1939 ..	318,734	92,242	1,718,227
Monthly Average, 1940 ..	309,100	80,500	1,660,927
1940			
January	349,889	101,000	1,784,900
February	318,734	90,000	1,718,000
March	359,000	105,000	1,972,000
April	378,000	110,000	2,050,000
May	390,000	114,000	2,130,000
June	360,000	103,000	1,888,000
July	283,000	81,000	1,410,000
August	243,000	69,000	910,000
September	247,000	70,000	940,000
October	258,000	74,000	1,110,000
November	265,000	75,000	1,200,000
December	258,000	74,000	1,100,009
	3,709,623	966,000	19,931,127

From the above table it is apparent that the business condition in the month of August reached the minimum for the year from the maximum height of May. However, with the re-opening of the Yunnan-Burma Highway in October and the general improvement of business conditions, the cotton mills increased their activities in November and December.

In 1939, total turnover of the local cotton market was 2,803,332 piculs, of which 1,336,070 piculs were Chinese native cotton and 1,467,262 piculs were foreign cotton. Total amount of Chinese cotton traded in the market was a little less than that of foreign cotton. The situation in 1940, however, was greatly changed, because of the large import of foreign cotton and the lack of any supply of native cotton, following the tightening of the control of cotton export by the Japanese authorities in the occupied areas of Central China. Total turnover of cotton in the first ten months of 1940 was 1,186,967 piculs or an average of 118,696 piculs per month as against an average of 280,333 piculs per month in 1939. Of the average of 118,696 piculs of cotton transacted each month, only an average of 44,774 piculs were Chinese cotton. The following table gives the amount of Chinese and foreign cotton transacted during the different months of 1939 and 1940 :—

	Chinese Cotton		*Foreign Cotton*		*Total*	
	1939	*1940*	*1939*	*1940*	*1939*	*1940*
January ..	264,585	93,426	374,249	22,426	638,834	116,870
February ..	93,918	117,356	53,757	37,233	147,675	154,589
March . ..	161,031	89,027	211,990	50,685	373,021	139,712
April	64,083	74,499	94,985	73,799	159,068	148,298
May	75,896	32,000	188,026	54,000	263,922	86,000
June	60,851	8,300	153,486	35,210	214,337	43,510
July	45,954	34,055	63,511	49,883	109,465	83,938
August . ..	43,136	59,800	125,658	24,648	168,794	114,448
September ..	112,015	39,284	116,471	77,340	228,486	116,624
October ..	82,693	45,916	36,995	137,062	119,688	182,978
November ..	134,855	—	26,409	—	161,264	—
December ..	197,053	—	27,725	—	218,778	—
	1,336,070	—	1,467,262	—	2,803,332	—

Prices of cotton increased tremendously in 1940 because of further slump of the value of Chinese dollar and the general increase of commodity prices. The following table will show the sudden increase of the price of cotton during the months of April and May and the drop of the prices of cotton in the following months. Prices of cotton increased again in the latter part of the year, because of improved business conditions of the cotton industry :—

1940	*Tachungchi*		*Tungchow*		*Hooche*	
	H.	*L.*	*H.*	*L.*	*H.*	*L.*
January ..	$220.00	$208.00	$176.00	$168.50	$166.00	$156.00
February ..	245.50	205.00	217.00	177.50	198.00	156.50
March . ..	238.00	228.00	219.00	202.00	205.00	190.00
April	258.00	230.00	228.00	205.50	215.00	195.00
May	312.00	240.00	255.00	221.50	248.50	205.00
June	245.00	175.00	238.50	177.00	205.00	141.00
July	213.00	190.00	176.00	154.00	155.00	137.50
August . ..	210.50	200.00	178.00	165.50	163.00	151.00
September ..	226.00	209.00	195.00	177.00	161.00	154.00
October ..	275.00	235.00	235.00	192.00	180.00	158.00
November ..	—	—	—	—	—	—
December ..	—	—	—	—	—	—

1940		U.S. Middling H.	U.S. Middling L.	Brazilian H.	Brazilian L.	Bengal H.	Bengal L.
January	..	$241.00	$221.00	$235.00	$207.00	$165.00	$155.50
February	..	272.50	215.00	260.00	248.00	184.00	154.50
March .	..	281.00	250.00	264.00	256.00	191.50	176.00
April ..	..	307.00	265.50	—	—	205.00	176.00
May ..	..	360.00	280.00	319.00	280.00	229.00	190.00
June ..	..	307.00	285.00	284.00	245.00	170.00	140.00
July ..	..	292.50	232.00	237.00	213.00	153.00	135.00
August .	..	260.00	235.00	235.00	226.00	152.00	130.00
September	..	268.00	248.00	266.50	248.00	142.00	131.00
October	..	305.00	272.00	298.00	272.00	180.00	141.00
November	..	—	—	—	—	—	—
December	..	—	—	—	—	—	—

As to the cotton yarn market, it was very active in the early part of 1940. It dropped in June and reached the lowest level in August. In the latter part of the year, the business picked up considerably. It must be pointed out that the local cotton market in 1940 was practically completely dominated by the speculators. While the daily turnover of cotton yarn was around 5,000 to 6,000 bales, approximately 80 to 90 per cent were taken by speculators. Aside from the speculators, the Hongkong merchants bought more cotton yarn in the local market than the other outport merchants. The following table gives the business condition of the local cotton yarn market, which does not include the business conditions of the Japanese cotton goods exchange, which was organized in the latter part of the year :—

1940			Total Turnover for 1940	Shanghai Merchants	Hongkong Merchants	Total Turnover for 1939
January	..	..	44,962	28,945	9,830	36,701
February	..	..	40,209	35,464	3,275	37,478
March	..	..	57,341	44,262	11,463	47,155
April ..	..	..	68,503	51,850	13,443	47,958
May ..	..	..	45,402	28,308	14,790	53,944
June ..	..	..	42,672	32,245	8,480	62,517
July ..	..	..	57,813	40,130	13,250	32,367
August .	..	..	53,762	40,307	10,182	33,741
September	..	..	78,863	60,787	17,033	37,890
October	..	..	145,738	125,200	19,330	38,485
November	..	..	—	—	—	51,171
December	..	..	—	—	—	84,875
Total	..	..	.. ..	.. ..	.. ..	555,282

The following table gives the prices of cotton yarn in Shanghai, for the 10's, 20's and 32's :—

1940		10's H.	10's L.	20's H.	20's L.	32's H.	32's L.
January	..	$620.00	$508.00	$761.00	$680.00	$1,000.00	$910.00
February	..	725.00	558.00	907.00	725.50	1,120.00	938.00
March .	..	770.00	640.00	1,038.00	820.00	1,440.00	1,060.00
April ..	..	1,060.00	745.00	1,490.00	945.00	1,790.00	1,285.00
May ..	..	1,255.00	675.00	1,760.00	1,125.00	1,800.00	1,300.00
June ..	..	1,080.00	477.00	1,425.00	773.00	1,485.00	1,200.00
July ..	..	860.00	460.00	1,062.00	770.00	1,243.00	960.00
August .	..	835.00	460.00	1,075.00	820.00	1,280.00	1,100.00
September	..	810.00	500.00	1,155.00	877.00	1,300.00	1,070.00
October	..	1,040.00	560.00	1,310.00	950.00	1,500.00	1,200.00

The highest price reached for 10's in 1939 was in the month of September amounting to $700.00 but the highest in 1940 was $1,255.00 in May. The highest price for 20's in 1939 was $860.00 in September while the highest in 1940 was $1,760 in May. The highest price for 32's in 1939 was 962.00 in December while in 1940 the highest price for 32's was $1,800.00 in May. This table shows clearly that prices of cotton yarn increased tremendously when compared with that of the past year. The following table will tell more the extent which the prices of 20's increased during the past four years :—

Month		1937 High	1937 Low	1938 High	1938 Low	1939 High	1939 Low	1940 High	1940 Low
January ..	..	257.0	245.3	260.0	—	400.0	364.0	767.0	705.0
February .	..	257.0	238.3	280.0	260.0	406.0	389.0	911.0	762.5
March ..	..	349.5	234.9	315.5	280.0	403.0	364.5	1,058.0	880.0
April ..	..	257.5	243.3	302.0	289.5	435.0	389.0	1,760.0	1,045.0
May ..	..	281.0	257.0	304.0	294.0	445.0	410.0	1,760.0	1,250.0
June ..	..	295.0	263.5	312.0	296.8	510.0	427.0	1,425.0	800.0
July ..	..	265.5	240.0	365.0	324.0	595.0	477.0	1,064.0	820.0
August ..	..	254.9	240.0	404.5	366.0	781.0	547.0	1,025.0	872.0
September	..	300.0	295.0	486.0	399.5	860.0	545.0	1,115.0	965.0
October .	..	296.0	289.3	505.0	375.0	778.0	603.0	1,295.0	1,085.0
November	..	302.0	295.0	361.0	314.0	700.0	622.0	1,298.0	1,161.0
December	..	295.4	278.0	362.0	340.0	754.0	687.0	1,435.0	1,207.0
		302.0	234.9	505.0	260.0	860.0	364.0	1,760.0	705.0

As to cotton cloth, the market was very active in 1940. The following table gives the monthly turnover as well as the amounts purchased by local dealers and the Hongkong merchants :—

1940			Total Turnover in 1940	Shanghai	Hongkong	Total Turnover in 1939
January	..	..	8,200	3,700	1,300	60,312
February	..	..	9,770	4,900	1,300	5,485
March .	..	..	17,090	8,400	910	26,385
April ..	..	..	24,960	10,350	930	22,190
May ..	..	..	14,680	6,060	450	11,725
June ..	..	..	11,290	4,790	1,030	8,625
July ..	..	..	10,005	5,050	830	9,405
August .	..	..	16,310	8,920	2,980	7,220
September	..	..	15,730	9,250	2,800	13,030
October	..	..	31,070	23,800	2,450	10,050
November	..	..	—	—	—	15,850
December	..	..	—	—	—	10,830
Total	..	..	.. ..	.. ..	.. ..	201,107

Prices of cotton cloth increased also tremendously during 1940, as shown in the following table :—

1940			16-lb. Double Elephant H.	16-lb. Double Elephant L.	14-lb. Globe H.	14-lb. Globe L.	12-lb. Fu Kwei H.	12-lb. Fu Kwei L.
January	..	..	$28.50	$27.50	$25.00	$24.50	$22.75	$22.25
February	..	..	32.50	30.25	28.00	26.50	27.50	25.48
March .	..	..	36.75	33.00	30.50	28.00	31.50	26.54
April ..	..	..	47.50	39.25	40.00	32.50	45.00	35.00
May ..	..	..	50.00	44.50	42.00	41.50	48.00	37.50
June ..	..	..	42.50	32.75	—	—	37.00	27.50
July ..	..	..	35.50	32.00	—	—	28.00	26.00
August	..	..	38.00	36.75	—	—	28.50	27.00
September	..	..	38.25	37.75	—	—	28.50	28.25
October	..	..	39.50	38.75	—	-	33.50	30.50

In view of the general situation in 1940, it may be said that if the European war and the Sino-Japanese war continue and if there is not any serious change of the military situation, the cotton mills in Shanghai will enjoy another prosperous year in 1941 and that prices of both cotton, cotton yarn and cotton cloth will increase with the depreciation of the value of the Chinese dollar. However, the local cotton mills are facing serious problems, of obtaining sufficient supply of raw materials as the Japanese authorities have extended full control to the export of native cotton from the occupied areas of Central China and that it has become increasingly difficult to secure foreign cotton, because of the depreciation of the Chinese dollar as well as the difficulty to secure shipping spaces as the war expands.

Synthetic Rubber

(Continued from page 32)

then brazed or soldered on to the brass rod protruding from the insulation frame. Used in this manner the flexible ebonite has an advantage over the ordinary ebonite previously used. It has a longer life because it is not liable either to mechanical or chemical injury.

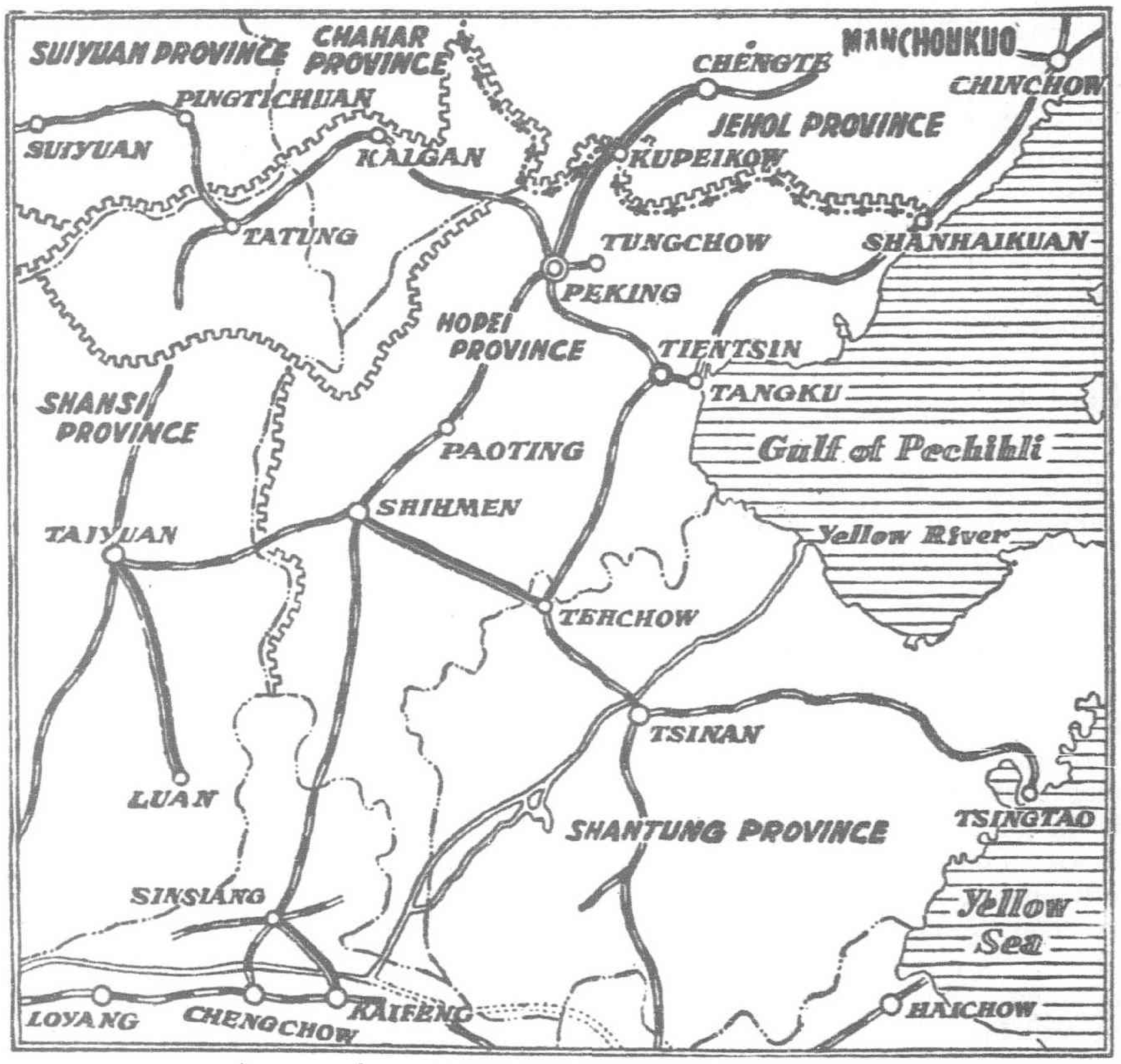
From this brief review of synthetic rubber it is clear that the material has a definite future before it, but perhaps it would be too optimistic to say that the day will come when we no longer import rubber, but make it ourselves from our coal and limestone. A curious point about its development is that originally it was intended to find a cheap substitute for rubber, a material at less price and very probably a shorter life. But the opposite has occurred, and although the synthetic product is more expensive to buy than rubber, in most cases it is far cheaper ultimately, because of its longer life.

Important New Rail Link in North China

By A. V. WEDEKIND in The Peking Chronicle

A RAILWAY crossing central Hopei Province, a dream for 24 years has finally become a reality. The new Tehchow—Shihmen (Shihchiachuang) railroad, called the Tehshih Line, is an important link between the Kinghan (Peking-Hankow) and the Tsinpu (Tientsin-Pukow) railways, it runs across a tremendously fertile region which abounds with agricultural products, especially wheat and cotton. It serves as a feeder to Tsingtao, a new outlet to the sea for Shansi and Mengchiang.

A casual reflection on these few facts will show the great commercial worth of the Tehshih route. It is also of considerable strategic value for the maintenance of peace and order in the interior of the province. Bandits and guerillas will be harder pressed than ever and even the Chinese peasant realizes the beneficial effects the railroad will have for him. Old markets for his products have come closer and new ones have been opened. No longer will a few motor trucks laboriously haul a limited quantity of his cotton and wheat to the large cities over bad country roads and take days to do it.



Map showing North China railways

The Tehshih Line spells a new deal to the harassed farmer; it promises protection from marauding "soldiery" and guarantees to carry as much of his products as he can supply to the outside world. And there is no Chinese field laborer to-day who does not recognize these elementary facts.

The Chinese peasant, no matter what may be said of his old-fashioned methods of agriculture, has fully come to recognize the benefits of railways, good roads, fast transportation and the meaning of these outlets to the outside world. The past four years have taught him more than the previous 40 had done.

The first definite plan for a link between the Kinghan and Tsinpu Railways was prepared in 1916. But the work barely progressed beyond the drafting stage. Tsangchow was originally chosen as the Tsinpu terminus. In May of this year it was decided to make use of Tehchow in Shantung, probably because of the shorter distance to Tsingtao through Tsinan.

No special difficulties were encountered. The route ran across rich yellow soil, a typical loess area. Shihmen is 230 feet above sea level and Tehchow 20 meters. Thus construction proved relatively simple. The chronological history of the work is short. Surveying started on June 1 and ended on August 17. The road bed was begun on June 15 and finished on October 31. The first rail was laid on July 12 and the last on November 12.

Engineer Sent from Japan

The North China Communications Company and a special corps from the Japanese Railway Ministry co-operated with a railway engineering detachment of the Japanese army. The railway passes through the following larger towns: Kaocheng, Tsinhsien Shulu, Motow, Hengshui, Lungkwachen. Roughly described the route is divided into two different region types. From Shihmen to Shulu the agriculture, soil, dwellings and the people belong to the Kinghan area types. From Shulu eastward to Tehchow the types change and begin more to resemble those found along the Tsinpu railway. Mr. M. Arima, the engineer who was specially sent from Japan to aid in the railway construction, draws attention to this dissimilarity.

Two rivers are crossed by the Tehshih railway, the south canal near Tehchow and the Fuyang Ho. There was little difficulty in building the necessary bridges. The cost of the new line was relatively inexpensive, rails were obtained from the Nippon Iron Works and sleepers, of the pine variety, were brought from Manchoukuo. Other materials used were mostly drawn from Japanese army stocks.

There is no regular passenger traffic on the new railway as yet. A train now does the trip in ten hours, including all stops, and averages 15 miles an hour. The rail bed has been made wide enough to carry a second track if this should prove necessary in the future. Fifteen stations and signal houses are planned and will go up in due course. Construction work on the latest railway was begun on June 15 and ended five months later. Work was commenced simultaneously from both ends of the 120-mile link.

More Ambitious Scheme

A year or two before the Lukouchiao incident, when General Chiang Kai-shek controlled Hopei Province, a much more ambitious scheme was drawn up, namely to take the line right past Tsangchow eastward to the coast and build a special new port, thus cutting out Tientsin altogether. At the same time General Han Fu-chu, practically independent ruler of Shantung, was also planning to build a line to connect Shihchiachuang with Tsinanfu.

Anyhow, the Japanese having pacified North China, have now made Tsingtao the outlet for the trade of Shansi. But they have gone one better in this direction. The railway between Taiyuanfu and Shihchiachuang was built originally by French engineers with French money and was of the narrow-gauge type for which the French seem to have a special liking. Within one year of their presence in Shansi, the Japanese changed this narrow-gauge to a broad-gauge, so that cargoes can be shipped in the same freight car, without unloading, direct from Taiyuanfu, capital of Shansi, to the sea at Tsingtao.

This new line is, no doubt, a blow for Tientsin, but ought to be a good thing for the people of Shansi, at least in theory. It makes haulage very much shorter and should thus help to reduce the hitherto exorbitant freight charges on imports to and exports from Shansi.

This Tehchow-Shihmen railway is the fifth line that the Japanese have built, since they pacified North China. The others include the Peking-Jehol Railway, which connects Peking with Chengte the capital of Jehol Province and once the summer residence of the Manchu emperors. This is another of those numerous Chinese lines that were forever being talked about, but never built. Yet, except for 50 miles or so of mountainous country on the border between Hopei and Jehol it was a fairly easy line to build. Kupeikow, the name by which the line is more generally known, lies about half-way on the line, on the border, and is one of the famous gates in the Great Wall.

Built for Military Necessity

The Sinsiang-Kaifeng Railway in North Honan is a loop line which connects the Peking-Hankow line direct with Kaifeng. It was built partly for reasons of military necessity and partly owing to the vagaries of the Yellow River. Sinsiang lies north of the Yellow River on the Peking-Hankow line. Kaifeng, capital of Honan, which until recently lay south of the Yellow River, was connected with the Peking-Hankow line at Chengchow by the Haichow-Sian Railway. In 1938 the Yellow River broke its banks and changed its course, the main arm running south of Kaifeng, thus cutting it off from Chengchow.

One of the other two new railways in Shansi is the Tungkuan chen-Luan Railway, which connects Luan in south-east Shansi with Taiyuanfu, the capital, via Taiku. Though only about 150 miles long, its construction was quite an achievement, as in the southern part it runs through very mountainous country.

Another important communication artery in Hopei Province recently completed is a 100-foot-wide highway joining Shihmen to Tsangchow, also on the Tsinpu Railway but 70 miles north of Tehchow. An old road bed existed to some extent but this was almost completely destroyed by Chinese troops. The old bed was also found to be too low and so the work had to be redone in whole by the Japanese army. This was begun early last April. After the preliminary work had been completed, the 660-foot route was completed by Japanese military labor in 90 days.

New Road for Cars

The new road is intended for motor traffic and at present has a temporary macadamized surface. For 32 miles it runs parallel to the new railroad but at Tsinhsien it parts company with the latter and turns northward. The inauguration ceremonies of the motor-highway were held recently. Besides this main road there are several other roads in Hopei Province, newly built or repaired, that connect many other important towns on the vast plain. Neither in the building of the railway nor of the motor-highway were the few guerilla activities that occurred of much significance. A further proof of the general absence of effective anti-Japanese action is the fact that the railroad and the highways are being regularly made use of and continue uninterrupted.

A party of foreign press correspondents, including the writer, had an opportunity to see both new communication routes when they were taken to the spot recently by courtesy of the Japanese army headquarters in North China. Captain M. Takata, the army spokesman, conducted the pressmen. We left Peking by special plane, taking off from Hsiyuan airfield. The motor highway from the city to the airdrome has been completed with an excellent surface which makes for fast and enjoyable motor traffic.

The plane left the ground after a short run and soon we were soaring at 8,250 feet over the hills south-west of Peking. Fangshan and Choukoutien, the home of the "Peking Man," were passed. The flying was bumpy for a time but the plane soon settled down to a steady pace, doing 170 miles per hour with the wind behind it. Yichow came in sight and west of it the wall-enclosed park of the Western Tombs, the burial site of some of the emperors of the Manchu dynasty.

Over in Shansi, Wu Tai Shan was visible with its cap of virgin snow. We turned away from the mountain country and crossed the Laotang Ho, circled over Fuping, saw the Sha Ho on the left and then turned south.

Pingshan was flown over and we viewed the Hoto Ho, a large river wandering aimlessly far below us.

Construction Explained

We were welcomed on the landing field. Mr. M. Arima, the Japanese Railway Ministry's representative, explained the construction of the Tehshih Railway and was equally ready to answer questions.

We took off again but before making straight for Tsinan we were flown along the new railway. Kaocheng, the first big stop on the line, lies on the right bank of the Hoto Ho. We saw several trains, both stationary and moving. The Catholic Church's spire in the little village of Tsangtsung was clearly visible. As a matter of fact, better flying weather could not have been wished for. Tsinhsien, another important station on the Tehshih Line, was soon crossed. Always the tracks of the railway were kept in view below us and parallel to the railroad ran the motor-highway to Tsangchow. At Tsinhsien the latter veered off to the left and we continued eastward on our flight to Tehchow.

Across the central plain of Hopei the fertile land, a rich brown in color, is dotted with hamlets and farms. Every mile of the soil seems to be cultivated. The land is cut into fancy patterns and the same pattern of tiny fields is repeated over and over again. The view is encouraging and pleasing was the thought that ours was the first passenger plane to fly along the new railway.

Tehchow was reached 41 minutes after taking off from Shihmen. It is a sprawling town, 148 miles from Tientsin, with a snaky wall around it. After circling the town we turned southward, flew over the Yellow River and landed at Tsinan exactly on schedule.

Railcars for New Zealand

(Continued from page 21)

on the gear-box the necessity for flexible air connections—so often a cause of trouble—between the bogie and the body is dispensed with.

Brakes, Electrical Equipment and Heating

The braking is on the Westinghouse straight airbrake system with an emergency feature, which provides automatic application of the brakes should there be a loss of air from the emergency pipe due to a break away or other cause, such as placing the brake valve handle in emergency position, the operation of the passenger emergency valve, or the release of the deadman's pedal.

All electrical circuits for the controls may be isolated by a removable key on the gear-box master controller which can be inserted or withdrawn only in the "off" position, so that when the key is removed the controls at that desk are isolated and immune from outside interference. The controls for the driver have been kept as simple as possible and comprise a pneumatic control for the engine speed, a change-speed and forward and reverse gear controller, driver's brake valve, starter push-buttons, deadman's pedal, and the necessary service light switches, engine tachometer, and indicator lamps. As soon as the master key is inserted and the switch closed it is then possible to start up the engine, and when sufficient air pressure has been obtained the gear lever can be moved to the first gear position. This lever is mechanically interlocked so that it cannot be moved from "off" unless the reverse lever is in "forward" or "reverse." Depressing the start button marked "This Car" energizes the engine start and run solenoid and at the same time causes the starter motor to rotate the engine. Full controls for starting the engine on the second car are provided in each driving position. In addition, a starting position is fitted in each engine-room. When operating in multiple unit either engine and transmission can be readily isolated by simply withdrawing a multi-point plug in the engine-room which carries all the electrical control circuits from the body to the power bogie.

The heating of the car is carried out by means of Clayton Dewandre heater units utilizing hot water drawn from the engine cooling water system.

All the Diesel engines, power, and carrying bogies and auxiliary subframes are being built at the works of the Vulcan Foundry, Ltd., Newton-le-Willows, the main contractors, who have also carried out the complete erection and testing. The bodies have been built at the Preston Works of the English Electric Company. The whole of the contract is under the inspection of Mr. R. J. Harvey, Consulting Engineer to the New Zealand Government Railways. A number of photographs are reproduced herewith.